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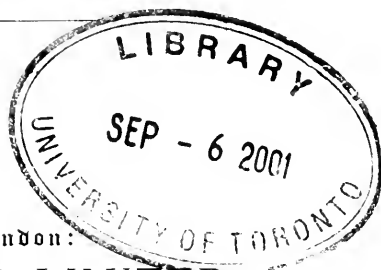
THE
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THE
JOURNAL OF LARYNGOLOGY,
RHINOLOGY, AND OTOTOLOGY.

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RUFUS PRATT LINCOLN, M.D.

OBITUARY NOTICE.

WE regret very much to announce the loss of Dr. Rufus Pratt Lincoln, who died at his residence in New York on November 27 last, aged fifty-nine. He was a native of Massachusetts, and served in the line throughout the Civil War, gaining the rank of Colonel. His medical studies were pursued at the College of Physicians and Surgeons, in New York, and he became a graduate at the Harvard Medical School in 1868. After serving in the Massachusetts General Hospital, he began practice in New York in 1869, and was actively engaged in professional work until his last illness.

Dr. Lincoln devoted himself specially to diseases of the throat, and was a Fellow and Ex-President of the American Laryngological Association. He had also been President of the Harvard Medical Society in New York.

Dr. Lincoln's career was notable in one respect, inasmuch as he devoted his energies very largely to his own practice and attained to a position in which he was held in the greatest esteem by his medical brethren without any public appointments, clinics or medical schools. His writings were valuable, although they were by no means too frequent.

The *New York Medical Journal* of December 1 said: "Dr. Lincoln was a man who enjoyed the respect, confidence, and regard of the profession and the community to an uncommon degree."

RETROSPECT OF LARYNGOLOGY DURING 1900.

BY J. MACINTYRE.

DURING the past year a great deal of attention has been paid to diseases of the larynx, and although no striking discovery has been made, many clinical cases have been recorded, and valuable discussions at the various associations have taken place. As usual, the more serious chronic ailments, such as malignant disease and tuberculosis, have been very largely dealt with, but diphtheria and other important acute affections have not been neglected. The chronic affection which seems to bulk most in the literature is malignant disease, and greater attention than ever is being paid to early diagnosis and the best methods of treatment, which of course, in most instances, means the best operative procedure.

At the twenty-second annual meeting of the American Laryngological Association held in Washington in May last, these affections were under discussion, the first speaker being Dr. John Noland McKenzie, of Baltimore, who opened the proceedings with a plea for early naked-eye diagnosis and removal of the entire organ, with the neighbouring area of possible lymphatic infection. He made special reference to the question of removing a portion of the diseased structure for examination, and warned the profession against this on account of the risk of auto-infection, metastasis, stimulating growth, and lastly because the results are very inconclusive. Professor Fränkel, of Berlin, has elsewhere expressed himself differently; he thinks the microscopical examination of pieces removed from a tumour of the larynx is of fundamental importance in the diagnosis of cancer. Professor Moritz Schmidt has given us a valuable contribution to the diagnosis of laryngeal cancer. We may also here refer to Dr. Goris' interesting work on the immediate and remote effects of thyrotomy. Among many valuable papers of note, Dr. Bryson Delavan has published a series of elaborate statistics in tabular form, which were last month reproduced in this journal. The author incorporates the tables of other distinguished workers, and they certainly bring out the value of thyrotomy combined with early diagnosis as opposed to other methods of surgical procedure. As the author states, the figures speak convincingly for themselves.

At the thirteenth International Medical Congress, held in Paris this year, Dr. Gluck, of Berlin, discussed his method of performing the major operations of the larynx. In operations for stenosis and serious cicatricial adhesions, where he freely opened and extirpated

all pathological masses as far back as to free the anterior œsophageal wall, suturing the two openings in the trachea and larynx, the results were excellent. The report also refers to the technique of total thyrotomy and laryngectomy, operations for loss of substance, and lastly malignant disease of the larynx. He thinks that in extirpation of the larynx, or, more generally speaking, in all operations leading to death from aspiration pneumonia, prophylactic resection of the trachea absolutely prevents the formation of broncho-pneumonia foci. He has a special phonetic apparatus which he has used with more or less advantage in cases of cancer of the larynx, and his results are good. Dr. Courtade, in dealing with palliative treatment of malignant disease of the trachea and larynx, uses rubber catheters with a view of easing respiration, and recommends perchloride of iron and peroxide of hydrogen to check hæmorrhage. He also recommends for decreasing the quantity and fœtor of secretion, the use of menthol oil, eucalyptus, or tracheal sprays, and for external granulation swabbing with pyoctanin. An important paper by Gougenheim and Lombard has been published during the year, in which they state that complete laryngectomy would be performed as the operation by choice were it not for the high death-rate. At present, however, they admit that preference must be given to partial laryngectomy. While there may be much to suggest conflict in the views of different physicians and surgeons in the work during the past year, there can be no question that progress has been and is being made, and that surgeons are becoming more reconciled in their ideas. Sir Felix Semon has expressed the view that, while thyrotomy is still somewhat unpopular, an era of far greater usefulness is dawning for it, and we think this is the tendency and most approved method in this country, at least.

Tuberculosis of the larynx has, as usual, received a considerable amount of attention from workers in our special department during the year, and we have had the usual varieties in formulæ for palliation locally and constitutionally. Much controversy, it will be remembered, was caused some years ago by the more advanced notions of certain workers dealing more particularly with inter-laryngeal surgical operations, methods which led to a considerable amount of discussion, doubtless on one side reasonably induced by those who held that it was a great responsibility to promise what might not be in our power to those afflicted with this serious affection. In this connection, therefore, the work of Dr. Freudenthal is of interest, as he has given us some results in curetting after Heryng's method. He states that he cannot recognise in advance

cases suitable for this treatment; as yet it is experimental. Twenty-nine cases are recorded, and of these eighteen were not improved; in seven there was slow improvement fairly attributable to the application of the curette, and in four there was temporary amelioration.

At the Ipswich meeting of the British Medical Association held last year, an important discussion took place upon the bacteriological diagnosis of diphtheria, Dr. Andrewes Lister and Dr. Lazarus Barlow taking part in the proceedings. The President, Dr. Klein, in summing up, stated that the views expressed by the two former gentlemen would commend themselves to bacteriologists, namely, that the bacteriologist cannot at present do all that the clinician expects. Opinions such as these are of value, inasmuch as they show us that this method of diagnosis has its limits as well as others. Many other papers have during the year appeared upon this point of diagnosis, and gradually the true value to be attached to positive and negative evidences is being recognised. The different forms in which the bacilli are found, their association with other organisms, and the relationship of all to the clinical aspects of the disease, have received much attention, but a great deal yet remains to be done.

The pathology and treatment of toxic paralysis of the larynx formed the subject of discussion at the same British Laryngological Association meeting, and Dr. Watson Williams' paper reported in this journal is of importance.

Among other papers of general interest, we have one by Dr. Aitken on the resonator of the voice, which he holds to consist of a series of air-spaces above the vocal cords, which he regards as a distinct instrument by itself, the acoustic principle being solely the characteristic vibration of air enclosed in the hollow spaces. Professor Krause's work on singers' nodes and treatment, as well as that of Dr. Capart, are of interest. Botey has given us an excellent article upon vocal trouble in singers, with remarks upon treatment, which is of importance, coming as it does from one who has had great experience. Flatau has published a paper on loss of voice, and Rosenberg has written one upon the same question dealing with the pathological aspect.

Amongst others of clinical interest, we note a case of laryngeal whistling recorded by Sir Felix Semon during the year. Schrötter reports a tumour of the thyroid which was not seen on quiet respiration, but which emerged on coughing, and an interesting case of foreign body in the right bronchus which could be seen by means of Röntgen-ray examination at the level of the fourth rib on

the right side of the sternum, and which was removed under cocaine *per vias naturales*. Armstrong reports a case of thyroid duct and its removal with the cyst, and Bouli records a case of direct fracture of the larynx.

Considerable improvement has been made during the past year in the technique of the X rays and methods of diagnosis, one of the most important results in the former being that of MacKenzie Davidson, who has introduced an apparatus whereby objects may be seen stereoscopically on the fluorescent screen. The position which the Röntgen rays occupy in diseases of the larynx and neighbouring organs was discussed at the meeting of the British Laryngological Association, and a report of the proceedings will be found in the journal. There are two conditions in which they have been found of advantage: firstly, in connection with foreign bodies in the larynx, and cases are from time to time being reported, showing continued use and value in this region; and, secondly, in the diagnosis of those affections which indirectly affect this organ. Sufficient clinical evidence has now been produced to show that in aneurism, enlargement of the heart, and deposit in the lung, we have got an additional test in the X rays, and more than once it has been claimed by the surgeon that he has been able to diagnose the precise pathological condition at an earlier date than would have been possible by any other means. This question was discussed in the presidential address to the Röntgen Society in November, a report of which will be found in the Archives for the present session. An interesting series of experiments upon the therapeutic action of the X rays has been made by Drs. Wolfenden and Forbes Ross, who have come to the conclusion that, far from destroying micro-organisms, they actually stimulate the growth. Certainly, so far we have no clear record of benefit obtained in tubercle of the larynx by their application to the neck.

RETROSPECT OF RHINOLOGY.

By DR. A. SANDFORD (CORK).

A RETROSPECT of the work done during the past year in the field of nasal surgery and therapeutics resolves itself mainly into a retrospect of details and of industrious investigation rather than of important innovations.

The multitude of interesting and instructive communications relative to this special subject which have appeared in this journal

and elsewhere from various sources indicate the great activity which has prevailed in the endeavour to extend the field of observation with regard to the general effect of local nasal conditions; and also shows the close attention which has been given to testing the practical value of former observations under the light of increased experience. In this province good work has been done in Great Britain and on the Continent, whilst the frequent occurrence in the journal of references from well-known American colleagues show that our Transatlantic kinsfolk are, as usual, not behindhand in directing an enlightened ingenuity toward increasing our knowledge in this special field of scientific research.

Records of cases of affections of the nose and the adjacent cavities, with discussions as to their far-reaching effects and treatment, have taken an increasingly frequent and prominent place in the proceedings of the various Societies, and may be found reported in their Transactions. Most of these may be found recorded in the pages of this journal, and are readily accessible for consultation under their proper headings. Amongst the many communications of interest may be mentioned articles on (1) "The Diagnosis and Treatment of Chronic Purulent Nasal Discharges," by Mr. Edmund Roughton (JOUR. OF LAR., RHIN., AND OTOL., May, 1900); (2) "Anosmia," by Dr. Onodi, of Budapesth (reported in JOUR. OF LAR., RHIN., AND OTOL., November, 1900); (3) "The Bacteriology of the Normal Nose," by Dr. StClair Thomson (JOUR. OF LAR., RHIN., AND OTOL., August, 1900); (4) "The Auditory Results of Removal of Post-nasal Adenoids," by Dr. McKeown, of Manchester (JOUR. OF LAR., RHIN., AND OTOL., September, 1900).

Interesting cases of unilateral optic neuritis associated with sphenoidal sinusitis and diseases of the posterior parts of the nasal fossæ have been recorded (De Laperson, *L'Echo Médical du Nord*, September, 1889).

Cases of hamorrhage after removal of adenoids have been recorded by Martin and others. The value of the negative air-douche has been advocated by Réthi as an aid to the diagnosis of diseases of the accessory cavities. Cases of frontal sinus empyema have been carefully recorded by Dr. Herbert Tilley and others. Atrophic rhinitis has been treated of by Dr. Logan at the annual meeting of the American Laryngological Association.

RETROSPECT OF OTOLARYNGOLOGY.

BY DUNDAS GRANT AND ATWOOD THORNE.

In the following retrospect are reviewed the contributions to otology contained in the last volume of the JOURNAL OF LARYNGOLOGY, either in the form of abstracts or original articles. The reference numbers indicate the page in that volume to which the reader may refer for fuller details.

EXTERNAL EAR.—Lermoyez (450) gives a full description of the prophylaxis of *Eczema of the Ear*, whether attacking the auricle or meatus alone or both together. Liaras (451) summarizes all that is known of *Lupus of the Ear*, and describes several cases of *Lupus of the Middle Ear* which has spread along the Eustachian tube from the naso-pharynx. Cheatle (316) showed at a meeting of the Otolaryngological Society a patient who had suffered from *Adenocarcinoma of the External Ear and Meatus* where much of the auricle and all the meatus had been removed. Guranowski (402) described a case of *Serous Cyst of the Auricle*, and discusses the differential diagnosis of these cysts and *Hæmatoma*. Gruber (324) showed a model of a *Frost-bitten Auricle* showing all the stages.

MEATUS.—Guranowski (402) showed a case in which the cartilaginous meatus was duplicated, and in which there was a normal tympanic membrane. Gerrad (109) gives a description of *Otitis Externa Tropica*, a disease which appears to be fairly common in Singapore and the Malay States. It is somewhat similar to *Furunculosis*, though it may be painless. Macaskie (673) shows the difficulty there may be in removing *foreign bodies* from the ear, and describes a case where, a piece of indiarubber having got into the ear, attempts at removal in the ordinary way proving futile, it was removed with the assistance of seccotine and a teased-out piece of string. Kaufmann (323) found it necessary in one case to open the mastoid in order to remove a *foreign body*. Bing (324) described a *concretion* in the meatus consisting of a nucleus of cotton-wool surrounded by a crust composed of fatty acids, with lime-salts. Cheatle (316) showed a case of *Epithelioma of the Meatus* which had invaded the middle ear and parotid regions, and Hennebert (206) describes a case of *Cavernous Angioma of the Meatus*. Kelson (666) showed a case of *Exostosis* in a man fond of aquatic exercises. Schwartze (674) gives at full length the treatment of *Acquired Atresia and Stricture of the Meatus*. Urban Pritchard (123) read a paper on the *Antiseptic Purification of the Meatus and Adjacent Parts*, both for operations

and as a treatment in chronic middle-ear suppuration, chiefly by means of the Listerian strong carbolic solution.

THE MEMBRANA TYMPANI AND OSSICLES.—Gruber (109) discusses the *Pathology of Relaxation of the Membrane*. Overacker (57) relates a case of *Multiple Perforation of the Membrane from Injury*, with remarkable symptoms; and Marx (323) showed a girl of seventeen with a *Heart-shaped Perforation of the Membrane*, through which the *Carotid Artery* could be seen. Stetter (113) discusses *Chronic Dry Myringitis*, but the cases described seem to have many of the characteristics of chronic non-suppurative catarrh of the middle ear. Lake (621) analyzes many of his cases of *Complete Ossiculectomy*, and shows the great success of the operation both in improving hearing and in curing discharge. Fagge (316) showed a case in which discharge had existed for eighteen years and was cured after *ossiculectomy*. Obraszoff (568) describes a case of *Eclampsia due to Paracentesis*; and Dundas Grant (316) a case of *Old-standing Perforation healed by the Application of Trichlor-acetic Acid*. Politzer (66) discusses the *Extraction of the Stapes* in its various aspects; and Dench (108) describes in detail *Synechiotomy of the Stapes*. Faraci (68) read a paper on the *Possibility of Re-opening the Fenestra Oralis in Cases of Osseous Ankylosis of the Stapedo-vestibular Articulation*.

CHRONIC NON-SUPPURATIVE CATARRH OF THE MIDDLE EAR.—Roy (673) gives some observations in the prognosis and treatment of so-called *Catarrhal Deafness*. Nuvoli (70) gives the results of his experiments on the *Pneumatic Treatment of Diseases of the Ear*.

ACUTE SUPPURATION OF THE MIDDLE EAR.—Nadoleczny (673) gives details of the *Bacteriological Examination* of these cases. Heine (672) shows the especial danger of this trouble in old people. Fullerton (226) lays stress on the importance of *early paracentesis* in some of these cases. Miot (453) advocates the employment of *Bleeding and Refrigerants* in the treatment of this disease, especially in young children.

CHRONIC SUPPURATION OF THE MIDDLE EAR.—*Otitis Media Neonatorum* is thought by Aschoff (223) to be caused by the presence of foreign bodies due to the organization of normal or accidental contents of the amniotic fluid. Hammerschlag (109) showed a case of this disease where both ears *healed spontaneously*: the left after the manner of a Stacke's operation, and the right like a typical radical operation.

DANGEROUS SEQUELÆ OF SUPPURATIVE INFLAMMATION OF THE MIDDLE-EAR MENINGITIS.—The *various forms of meningitis*, otitic or otherwise, including the important serous forms, are described

by Dana (342), who insists on the important diagnostic value of lumbar puncture. Numerous typical cases are narrated by Grunert and Zeroni (412, 413, 415, 418, 420, 424). One (415) was remarkable from the absence of pyrexia, the symptoms simulating those of cerebral abscess; another (417) was occasioned by carcinoma of the petrous bone; two (421, 423) were complications or results of temporo-sphenoidal abscess; one (424) arose from labyrinthitis; two (416, 420) were independent of otitic disease, and were correctly diagnosed as cases of tuberculous meningitis.

CHOLESTEATOMA.—Urban Pritchard (143) showed a case in which he had removed a *Cholesteatoma* through the meatus. Tilley (144) showed a similar case; the *Cholesteatoma* in this case had given rise to a very marked reflex cough.

INTERNAL EAR.—*Menière's Disease.*—Urban Pritchard (457) read a paper on this subject at the International Congress in Paris. Oppenheim (454) discusses the same subject, as does also Moll (562). *Cases of Hysterical Deafness* are described by Taptas (454), Courtade (286), Hammerschlag (228), and Lannois and Marc Hardirer (430). Courtade (91) gives a means of detecting *Simulated Unilateral Deafness*. Urbantschitsch strongly urges the importance of *Methodical Acoustic Exercises for Deaf-mutes*. Huth (446) gives a careful account of all that is known in relation to *Consanguineous Marriage and Deaf-mutism*. Pollak (112) relates a case of *Complete Deafness* following a railway collision.

MALIGNANT DISEASE.—Melzi (27) describes a case of *Fibro-angioma of the External Meatus*; Alt (229) a case of *Sarcoma growing from the Middle Ear* of a boy aged five; and Ballance (315) an *Alveolar Sarcoma of the Petrous Bone*.

GENERAL DISEASES.—Schwabach (454) describes a case of *Pernicious Anæmia with Hæmorrhage into the Middle Ear*, the internal ear being free. Gomperz (324) showed a temporal bone from a case of *Leukæmia*, in which there was an encapsuled exudation in the antrum; the fluid contained cholesterin and fat cells. Weber and Lake (248) describe a case of *Acute Menière's Symptoms in Spleno-medullary Leucocythæmia*, with special reference to the anatomical changes found in acute leucocythæmic affections of the ear. Gaudier (57) describes a case of *Acute Tuberculosis of the Middle Ear*, which rapidly proved fatal.

TESTS FOR HEARING.—All workers in the specialty would hail with delight a universal notation of *Acoumetry*, but it is difficult to settle on one code. Schippers (556) and Hartmann (558) each suggest a different system. Bonnier (90) shows the *Inaccuracies*

of the *Tuning-fork* as frequently used, and wishes an optical standard of the movements of the fork. Gray (220) objects to the use of *Galton's Whistle* and similar instruments in testing for high tones, on account of the necessary adventitious sounds, and proposes that short brass bars, vibrated by means of a bow, should be used. Breitung (446) and Bing (342) discuss *Gelle's Test*.

ANATOMY AND PHYSIOLOGY.—Cheatle (13) gave a detailed account of the *Petro-synamosal Sinus*, a sinus which has important connections with the tympanum, both anatomically and pathologically. Joyce (23) gives an illustrated account of the *Topography of the Facial Nerve* in its relations to mastoid operations. Aldren Turner (131), at the International Otological Congress, gave a lantern demonstration of the *Central Connections of the Auditory Nerve*.

NOTES ON REMEDIES.—Gray (619), finding aqueous solutions of *Cocaine* and *Eucaine* unsatisfactory as local anæsthetics of the ear, found that the following is a useful prescription :

Cocaine hydrochlorate	-	-	5 or 10 parts.
Rectified spirits	-	-	50 parts.
Anilin oil	-	-	50 parts.

Gomperz (324) finds *Argonin* (casein-silver) a useful powder to insufflate cases of *Eczema of the Ear*. Vacher (58) extols *Formal* in the treatment of *Acute and Chronic Suppurative Otitis*.

NOTES ON INSTRUMENTS.—Boenninghaus (224) shows the advantages of a *Magnifying Lens* for the examination of the tympanic membrane.

INTRA-CRANIAL ABSCESSSES.—Jobson Horne (293) describes the post-mortem appearances in a case of death from *Aural Meningitis*. There was an abscess between the layers of the dura mater and a spot corresponding to the saccus endolymphaticus, the pus or the pyogenic organisms having passed from the labyrinth through the aqueductus vestibuli. Numerous interesting cases of *Cerebellar Abscess* have been recorded, including Rimini's (58), in which sudden death took place, and one of Hansberg's (110), in which operation was abandoned on account of dyspnoea. Interference with respiration was considered an indication for rapid prosecution of the operation, in a case of Dieulafoi's (567), one of Waggett's (144), and one of Milligan's (137). Another case of Hansberg's (110) was successfully operated on. In Bonain's case (445) death took place, but the cause seems to have been septicæmia. In Waggett's case (144) the cochlea subsequently underwent exfoliation. In Milligan's case (137) a return of the symptoms led to a second operation for the evacuation of a second abscess, which

had apparently formed in the interval. In this case the disease in the ear was so slight that Ballance suggested that the abscess might be independent of it, and in reality influenzal. Among *Cerebral Abscesses* are reported some following on acute otitis—Blake (613) and Seligmann (230). In the latter lumbar puncture was used for the purpose of excluding meningitis, and the abscess on the brain appeared to be developing a second discharge, taking place at an interval after the first. Two abscesses occurred in the temporal lobe in Lindt's case (451). Heimann (402) reports the occurrence of an abscess in the occipital lobe, cured by operation. *Abscess round the Sigmoid Sinus* occurred in a case of acute otitis and mastoiditis under Politzer's care (322). There was double optic neuritis and pyæmic fever. He urges examination of the sinus should the temperature rise in spite of mastoid operation.

THE COMPLICATIONS OF SUPPURATIVE INFLAMMATION OF THE MIDDLE EAR.—Some valuable statistics from the reports of Prussian hospitals are brought forward by Teichmann (231); MacCallum (452) gives a general account of the complications, and Milligan (110) reviews the modern methods of treating them. Hessler (672), in a paper on *Middle-ear Suppuration and Brain Tumours*, discusses the differential diagnosis between brain tumour, brain abscess, hydrocephalus, and hysteria. *Auricular Septicæmia due to Bacillus Coli and Bacillus Perfringens* occurred in a case reported by Baup and Stanculéanu (455); the micro-organisms were found to be harmless separately, but toxic when combined. *The Complications of Acute and Chronic Middle-ear Suppuration* are studied from the bacteriological and clinical points of view by Leutert-Konigsberg (451).

MASTOID DISEASES.—Eulenstein (402) discusses the value of *Percussion* in the diagnosis of mastoid disease, and Ostino (344) describes a method of *Auscultation* by means of a tuning-fork on the vertex while differential stethoscopes are applied to the mastoid simultaneously. *Bezold's Mastoiditis* occurred in a case of Waggett's (551), and in one of Lermoyez (90), in which the patient was an infant two and a half months old, whose mastoid was of the pneumatic type. In a case of Urbano Melzi's (25) the pus burrowed so as to form a *Retro-pharyngeal Abscess*, containing bacteria the same as those present in the ear. Weissmann (114) describes the pointing of an acute mastoiditis into the external ear, the swelling resembling a furuncle, the diagnosis from which he discusses very fully. In an interesting case of Eschweiller's (402) the mastoid cavity, when opened, was found to be occupied by a *Fibro-myxoma*, apparently a polypus which had undergone myxomatous degenera-

tion. *A Case of Large Subperiosteal Abscess over the Base of the Mastoid Process* is narrated by Hasslauer (403), who details the various routes by which suppuration may extend from the tympanum to the surface of the mastoid.

OPERATIONS ON THE MASTOID.—Manasse and Wintermantel (217) describe seventy-seven radical operations, out of which forty were cured, twenty-one remained still under treatment, and the average duration of after-treatment was 17·8 weeks. Ballance (185) describes his method of lining the post-operative cavity by means of a large Tirsch graft. The details form a masterpiece of surgical elaboration. Dalby and Cumberbatch discuss on the same occasion the indications for operating on the mastoid, and numerous metropolitan and provincial aurists gave utterance to their respective views. Percy Jakins (447) gives a valuable statistical account of eighty consecutive Stacke operations. Botey (342), in discussing the question of suturing the post-mastoid wound, expresses a preference for the method of leaving the middle part open and plugged for some days, closing it afterwards by means of sutures.

OTITIC PYÆMIA.—One of the most valuable contributions is the paper by Grunert and Zeroni (409-424), which includes numerous cases of thrombo-phlebitis, which must be read in detail. Out of fifteen cases in which the jugular vein was ligatured recovery took place in ten, and death in five, while out of the six in which the vein was not ligatured there were five deaths. As a rule, ligature is to be recommended, but Cheatle (224), Politzer (228), Grant (143), report cases in which this was omitted with good result, operative interference being confined to the sigmoid sinus; while Levy (110) records one in which recovery followed the simple mastoid operation. On the other hand, Biehl (101) had a case in which, although the sinus was slit up till solid thrombus was left, transference of coagulated material to the opposite sinus took place. Lodge (493) narrates two interesting cases of lateral sinus thrombosis, one being obviously otitic, the other apparently independent of suppurative aural disease, but with a history pointing to thrombosis of cerebral sinuses fifteen years previous. A similar case in which the tympanic membrane was entire is recorded by Horne (310), who considers that infection probably took place through the petro-squamosal sinus. Barr and Nicoll (223) described two cases successfully treated, one due to chronic and the other to acute disease of the ear. In the case of MacCallum (452) sinus phlebitis was complicated with meningitis. Knapp (449) gives detailed histories of two important cases in which the jugular vein was not tied, death taking place in one and recovery in the

other; in both there was "choked disc." As a new symptom of obstructing thrombosis, Voss (233) mentions the absence of the murmur normally present when the stethoscope is pressed on the jugular vein.

MISCELLANEOUS.—Ballance in Clifford Allbutt's "System of Medicine" (172), writes on *Certain Affections of the Ear: Observations on the Recognition of Aural Diseases in Medical Practice*. This paper will most amply repay careful perusal. A discussion on *Intranasal Treatment in Ear Disease*, opened by McBride, Baber, and Dundas Grant, will be found at p. 471. McKeown (498) speaks of the *Auditory Results of Removal of Post-nasal Adenoids*. A case of *Menstruation through the Right Ear* is recorded by Lermoyez (404). Lucae (452) relates a case of *Profuse Escape of Cerebro-spinal Fluid without Cerebral Symptoms*. Mouret (453) discusses *Noises in the Ear due to Spasmodic Contraction of the Tensor Tympani or of the Dilators of the Eustachian Tube*. Ricard (454) relates a case of *Aural Reflexes in a Hysterical Girl*; and Sarremone (286) cases of *Facial Neuralgia due to Eczema of the Ear*. Gaglio (540 and 569) describes his *Experiments on Anæsthesia of the Semicircular Canals*. Yearsley (425) relates an *Anomalous Case of Central Hæmorrhage, connected with Increased Pressure in the Ear, due to Violent Coughing*. Suttler (229) gives a *Contribution to the Surgery of the Temporal Bone*. Dioniso (56) gives a *Method of Augmenting the Efficacy of Catheterization and of Facilitating the Injection of Liquids into the Middle Ear*. Ballance (314) shows a case of *Epithelial Grafting of the Labyrinth after Removal of the Semicircular Canals*. Muller (228) discusses the *Effect of Artillery Practice on the Ears*. Körner (672) describes the *Surgical Treatment of Suppuration in the Labyrinth*. Siebenmann (560) and Botey (561) discuss the *Surgical Treatment of Aural Sclerosis*. Haike (672) gives a *Contribution to the Pathology and Pathological Anatomy of the Middle Ear and Labyrinth*. Wilson (674) describes a case of *Mastoid Disease and Acute Otitis Media following an Injury*.

**ANGEIOMA OF THE LARYNX IN A BOY AGED SIX YEARS,
REMOVED UNDER CHLOROFORM BY AN ENDOLARYNGEAL
METHOD.**

BY A. J. BRADY,

Hon. Surgeon Department for Diseases of the Ear, Nose, and Throat, Sydney Hospital,
New South Wales.

THE successful removal of a subglottic growth by an endolaryngeal operation under a general anæsthetic, and the comparative rarity of angiomas of the larynx, in the opinion of the writer render this case of sufficient interest to warrant its record.

The patient was sent to the writer by a suburban practitioner, who from the symptoms—dyspnoea and bleeding from the mouth—suspected adenoids. The boy was very hoarse, and some blood was seen on the post-pharyngeal wall; he coughed frequently, and expectorated some blood. The laryngeal mirror revealed a globular growth about the size of a cherry below the anterior commissure of the vocal cords. It was of a deep red colour, and slightly rough-looking on the surface. It bled very readily, and every time the patient coughed the laryngeal mirror was smeared with blood. Both tonsils were enlarged; no adenoids were present. Cocaine was applied, and an attempt to remove the growth with laryngeal forceps was made. The forceps passed below the cords, and seized a portion of the growth, but the effort to remove it failed. Several subsequent sittings were tried, but with no success, as the boy always strained and coughed as soon as the mirror was introduced. He was admitted to the Sydney Hospital in the hope that systematic training of the throat would accustom it to the introduction of instruments. After a month's training he was as unmanageable as at the start. He seemed to cough voluntarily to resist the introduction of instruments. The tonsils were removed to give more room, but still the larynx could not be approached. The idea of operating under cocaine was abandoned; chloroform was administered, and by drawing the tongue forward with a Kirstein's tongue depressor a view of the upper part of the glottis, but not of the growth, could be obtained. A Heryng's laryngeal curette was passed into the larynx, and drawn upwards over the known site of the growth with moderate pressure three times. There was only slight bleeding, and a few shreds of tissue that appeared to be parts of the morbid growth came away. A subsequent examination showed some growth remaining, so ten days later the process was repeated, this time with complete success. The voice is now quite clear, there is no dyspnoea, and no trace of the growth can be seen

in the larynx with the mirror. The anæsthesia was during these manipulations carried to only a moderate extent, so that although there was no resistance or struggling, still some cough reflex remained.

ON POST-INFLUENZAL TRACHEAL HÆMORRHAGE.

BY JAMES DONELAN, M.B., R. UNIV. IR.,

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THE substance of the following article was read as a short paper at the ordinary meeting of the West Kent Medico-Chirurgical Society on November 2, 1900. The writer ventures to hope that the subject of which it treats may be found to possess sufficient interest, especially as regards diagnosis, to justify its appearance in the JOURNAL OF LARYNGOLOGY in a more extended form, together with notes of some of the cases.

Tracheal hæmorrhage has received but scant notice in medical literature; and yet, when one reflects how easily its occurrence under certain circumstances may lead to the assumption of the existence of more serious disease, one cannot but wonder that it has not attracted more attention. Doubtless, everyone who has had experience of diseases of the respiratory system can remember cases of hæmoptysis in which there was no reason to think the lungs were disordered, or were so only temporarily, and without evident relation to the bleeding, and in which the exact source of the hæmorrhage remained a mystery. Such hæmoptyses have generally been set down as bronchial, or perhaps even as tracheal, but only so because the patients did not develop pulmonary tuberculosis, and when recovery had taken place were dismissed from further consideration. Our standard text-books on medicine contain no reference worth mention to tracheal hæmorrhage, either as a sequel to influenza or as a substantive disease. The English and foreign works on laryngology which I have been able to examine are equally silent. In fact, there is none that makes any reference in detail to affections of the trachea, except Morell Mackenzie's chapters on "Acute and Chronic Tracheitis";* and in these, though a process of ulceration is described, no hæmorrhage is alluded to. The only important contribution to the literature of this subject I have been able to find so far is that by Professor Massei, of Naples, entitled "Chronic Hæmorrhagic Tracheal

* "Diseases of the Throat and Nose," vol. i., p. 519 *et seq.* London, 1880.

Catarrh,"* in which, however, there is no allusion to influenza as a cause, and which is in other respects quite a distinct affection from the chronic tracheitis of Morell Mackenzie.

It has often been said that we learn more from our mistakes than from our successes; and we know, on the authority of a great writer, "that truth is always rendered more apparent by a temporary contact with error." About five years ago the writer had an opportunity of confirming this dictum in regard to post-influenzal tracheal hæmorrhage, though on the termination of the contact the increased radiance of truth showed that he had been straying in the penumbra of error, if not in the darkness itself. Happily, the mistake involved no more serious consequences to the patient than the exercise of greater care in the treatment of the supposed more serious malady, whereby the less important, though for a time alarming, symptoms were cured.

Case I.—In September, 1895, I was consulted by a lady, aged twenty-six, whom I had attended some six months before during a somewhat severe attack of influenza, complicated with laryngitis and broncho-pneumonia. She had made a good recovery, with the exception of a slight dry cough, which never quite left her, and which during the two months preceding her visit had become persistent and hacking. The more immediate cause of her coming was the occurrence of two attacks of what she called "bleeding from the lungs," and a rapid loss of flesh. She complained of a constant feeling of tickling in the throat, and brought up in twenty-four hours from 1 to 2 ounces of muco-purulent expectoration, which at the time of her visit was stained with blood. Her temperature during the few days she was under observation varied from normal to 99·5° F. Some moist râles were heard in both infraclavicular regions. Shortness of breath on slight exertion was also mentioned. There were no pain, no night sweats, no coldness of the extremities, and the examination of the sputum on three occasions gave a negative result as regards Koch's bacillus. She had, however, obviously become very thin, looked haggard and anxious, and presented generally the appearance of a consumptive. The larynx, though somewhat paler than normal, was in other respects healthy. In the subglottic region some clotted blood could be seen coating the trachea. In view of these symptoms, and bearing in mind the fact that hæmoptysis occurs often at a time when nothing whatever can be found on examining the lungs of persons who afterwards die of tuberculosis, I told the friends of my patient that she was probably suffering from that

* *Archivii Italiani di Laringologia*, October, 1899, p. 155 et seq.

disease in an early stage. The lady went to the South of France for the winter of 1895, and returned to London in the following spring. There had been no further hæmorrhage, the lungs were perfectly clear, she had recovered her weight, and appeared to be in very good health. She remained well until September, 1897, when she had another, but slighter, attack of influenza, accompanied by the former persistent cough, leading up to hæmorrhage, by which she eventually lost from 4 to 6 ounces of blood a day for four or five days. On this occasion advantage was taken of the more extended opportunity for observation. During the attack the trachea was coated with blood, which appeared to be uniformly spread, though at this stage tracheoscopy could not be carried out very satisfactorily. As the acute phase passed away, the upper part of the trachea was coated with clotted blood more or less uniformly, or in the shape of tearlike clots. When the bleeding had nearly ceased, the larynx, including the vocal cords, was seen to be generally congested. It was, however, in the subglottic region the greatest abnormality was observed. The trachea from about the sixth ring up was intensely congested, and a close submucous plexus of dilated vessels could be seen occupying the intercartilaginous spaces, and in some places crossing over from one intercartilaginous space to the next above or below. Sometimes the examination provoked cough, and then blood was observed to ooze forth in this region, and it was plain that it did not come from any point lower down, as it was possible to observe the entire trachea down to the bifurcation. Except for these abnormalities, there was no other evidence of respiratory disease, and it became clear that the case was one of influenza, complicated with tracheal hæmorrhage. The patient has since continued in good health.

This case has been given at some length, as the history, symptoms, and appearances observed were, generally speaking, the same in the others.

Case II.—An engineer aged forty-six. Had always had good health until he went out to the Cape in the autumn of 1897. He there had a severe attack of influenza, but no hæmorrhage. He was seen in London in March, 1898, and complained of constant tickling in the throat, persistent cough, and hæmoptysis during the previous month. He had lost over a stone in weight since Christmas, was worn-looking, and very anxious lest he should have to give up his appointment. He had a sharp attack of hæmoptysis in the early morning of the day on which he was first seen, the amount lost being about 6 ounces. He thought he had caught a chill coming from the theatre on the night

previous. The temperature was 100.5° F. on the day of the hæmorrhage; afterwards normal. Dilated vessels and submucous hæmorrhages in patches in upper part of trachea. There was nothing wrong with the lungs, and he made a good and, as far as is known up to three months ago, a complete recovery.

Case III.—A porter aged thirty-two, seen at the Italian Hospital in the same month. Had had persistent cough since an attack of influenza, and during the fortnight before his visit three attacks of hæmorrhage, in which, according to him, he “lost oceans of blood.” Chronic pharyngitis and laryngitis; lungs healthy; tracheal vessels in patches. Remained well until last winter, when he had another attack. Was seen several times this year for his laryngitis. Lungs continue healthy. No further hæmoptysis.

Case IV.—A woman aged thirty-six, seen at Italian Hospital, October, 1897. History resembling that in Case III. Menstruation regular; lungs healthy. Seen October, 1900, quite well, and had no further hæmoptysis.

Case V.—A medical man aged fifty-four. Had several attacks of influenza, and had suffered from chronic rhinitis and laryngitis for many years, with, latterly, almost constant tickling in the throat and persistent cough, which much disturbed his rest. Called out at night in January, 1899; returned to bed at 2 a.m. At three o'clock woke up, to find himself “almost smothered in blood.” The attacks recurred three times within a week, but the amount of blood lost did not exceed 3 or 4 ounces on each occasion. Lungs healthy, except slight emphysema along anterior borders. Abnormal vessels in subglottic region very numerous and dilated. Quite well in August, 1900.

Four other cases of tracheal hæmorrhage occurring after influenza have come under observation; but, though the lungs were healthy at the time, it has not been possible to follow up the history. Of three others, seen in 1896-97, in which the trachea presented similar appearances to those referred to above, two have since died of pulmonary tuberculosis, and the other is in an advanced stage of that disease. They are referred to here as showing that, while tracheal hæmorrhage does exist independently of pulmonary disease, it may also be present as a distinct affection in persons who afterwards develop tuberculosis. The appearances seen in the trachea were similar to those observed in the cases which completely recovered, and were observed several months before any evidence of lung disease could be detected. In only one of these three did the larynx share in the tubercular infection.

In view of the cases in which the hæmorrhage was not followed

by the development of tuberculosis within two years of its occurrence, and of those in which, though no evidence of pulmonary disease could be found at the time or for several months after, yet in which, from their subsequent course, the hæmorrhage might not unreasonably be viewed as the expression of the stage of hyperæmia which so often ushers in pulmonary tuberculosis, it is obvious that the diagnosis presents some difficulty. It is therefore advisable to summarize here the symptoms observed. In all the cases, except one to be later referred to, there was a more or less recent history of influenza, and of more than one attack. The tickling in the lower part of the throat, and constant feeling of "something that must be got up," was complained of by all, together with the short dry cough, which is all the more persistent the more recent the influenza. There is no elevation of temperature unless influenza is still present—very often not even then. It is sometimes only attributable to the influence of alarm or of loss of blood if the hæmorrhage has been severe, and is generally only temporary, and the chart presents none of the characteristics found in incipient phthisis. The bleeding usually comes on suddenly, and may be repeated at intervals of a few hours or days, or several months may elapse between one attack and the next; but when this happens, the later attack has been preceded by a recurrence of influenza. As a rule, only small quantities of blood are coughed up—2 or 3 ounces in twenty-four hours—but, as in Cases III. and V., it may attain the proportions of a bronchorrhagia. Emaciation may be present, either as a result of the previous influenza, or, if the hæmoptysis has lasted for some months, it may be due to the anxiety of the patient lest he may have contracted the graver disease.

Examination of the chest shows no evidence of disease of the pulmonary parenchyma, but a few moist râles may be heard, or there may be more distinct traces of broncho-pneumonia if the influenza has been recent. There are, however, none of the classic signs usually associated with pulmonary tuberculosis. The absence of Koch's bacillus is of as little positive value as regards tracheal hæmorrhage as it is of negative importance in the case of tuberculosis, while its presence would of course demonstrate the existence of the latter.

While the repeated use of the stethoscope supplies the negative evidence, the laryngoscope alone can yield the positive, and the abnormal appearance of the subglottic vascular region on deep inspiration will at once engage the attention, even if no bleeding be going on. The most favourable time for examination is when

the attack is passing off and a little bleeding still taking place. The blood may be observed trickling down the trachea for an inch or so, the trachea below looking either somewhat paler than usual or else quite normal and entirely different from that observed in patients in whom the hæmorrhage comes from the lungs, when it may be either coated with clot or have small patches of clot here and there all the way down to the bifurcation. In most of the cases the mucous membrane was paler than normal, the groups of dilated vessels in the subglottic region standing out in marked contrast. In No. 1 it was congested, probably owing to the continuance of the influenza, at the time of observation.

The account of the appearances seen in chronic hæmorrhagic tracheal catarrh by Professor Massei closely resembles the foregoing, and, except for the absence of influenza, there seems no essential difference in the course of that disease from what was observed in these cases.

The treatment followed was that usually found efficient in pulmonary hæmorrhage: Rest, opium and ergot, or ergotin. Ice was given to suck, with advantage. After the acute attack, astringent sprays had an appreciable effect in diminishing the volume of the vessels and in improving the tone of the mucous membrane, while general tonics, such as strychnia and cinchona and a change to country air, when possible, completed the cure in the uncomplicated cases.

As regards the connection with influenza, it is not insisted on here as absolutely essential to the occurrence of tracheal hæmorrhage, especially in view of Professor Massei's article, in which he makes no mention of that disease; moreover, one other case was seen in which tracheal bleeding occurred independently of influenza and tuberculosis, but in which it appeared to have been the first warning of the hepatic cirrhosis, which subsequently ran a fatal course. At the same time, bearing in mind the profoundly depressing effects produced by influenza on the organism in general, and on the respiratory tissues in particular, that the pharynx, larynx, and upper end of the trachea are amongst the regions primarily affected even in the slightest cases, and that influenza preceded the hæmorrhage in all the patients here referred to except one, I venture to think it may be regarded justly as an important etiological factor. Though Massei does not mention influenza, he describes very clearly the anatomical conditions which favour the occurrence of hæmorrhage in this situation. Normally the subglottic region is very vascular, and this is just the point where the respiratory forces converge and produce their greatest stress in

phonation and coughing. It is easy to understand therefore how, by the extension downwards of the infection, together with the coincident loss of tone which influenza produces, a weak spot is sooner or later produced by the persistent cough.

It is hoped that the publication of these cases may prove of some practical use as regards diagnosis, and may also induce other observers to record their experience of an affection which, with the exception mentioned, appears to have been generally disregarded in medical literature. The writer's experience seems to point to the need for greater reserve in the diagnosis of pulmonary tuberculosis merely from the occurrence of hæmorrhage, emaciation, slight elevation of temperature, and suspicious chest sounds. The reflection is also induced: "How many so-called cures of early tuberculosis have been merely recoveries from tracheal hæmorrhage, occurring as a sequel of influenza?"

MOUTH-BREATHING, AND ITS RELATION TO DISEASES OF THE THROAT, EAR, NOSE AND ACCESSORY CAVITIES.*

BY MAYO COLLIER, M.S. LOND., F.R.C.S. ENG.,

Senior Surgeon to the North-West London Hospital.

MR. PAST-PRESIDENT AND GENTLEMEN, — In acknowledging the honour you have done me in electing me your President, a mingled feeling of satisfaction and anxiety is apparent to me—satisfaction that things have so befallen me that you should consider me worthy to preside over your deliberations, and anxiety that the debt I owe you in return may be poorly and inadequately repaid.

It is the custom, not only in this Society, but in other learned Societies, for the incoming President to launch himself into power by delivering a lecture on some important subject connected more or less with the aims and objects of the Society over which he presides. It is the first penalty you exact from him in return for the greatness you have bestowed upon him. I assure you this is a penalty not easy to pay.

I have chosen a subject to address you on to-day that has aroused, and is likely to arouse, not only in this country, but in America and on the Continent, considerable interest and controversy.

It was more or less the subject for special discussion at the recent Ipswich meeting of the British Medical Association. It is

* Presidential Address delivered before the British Laryngological, Rhinological and Otological Association on Friday, November 9, 1900.

a subject that has been discussed and animadverted upon by every degree of intelligence, including the many new recruits to the ever-increasing army of rhinologists, several distinguished members of our sister Society in America, and, strange to say, has even exercised the mind of a past-president of our own Royal College of Surgeons of England. Without ear-marking or criticising these various opinions, I would take the liberty to-day, as your President, of placing before you my personal convictions, the result of a fairly extensive study of this subject for the past eighteen years.

The text of my address to you to-day is the relation and bearing of mouth-breathing, or its equivalent, nasal obstruction, on affections of the throat, ear, and nose and accessory cavities; and incidentally I shall touch upon its responsibility for some cases of distortion of the upper jaw and palate, and its effect upon the general health.

Logic has taught us, and very properly, too, not to make use of terms we cannot define. It is here, on the definition or standard of what is nasal obstruction and what is not, that so much difference of opinion exists, and so much want of comprehension and negation of fact occurs.

And first I would remind you that the nose is the upper part of the respiratory tract. It is as much an essential part of the respiratory tract as the larynx or trachea. Its proper patency and physiological activity are just as essential to the respiratory function as the proper patency and physiological activity of the larynx and trachea. It is the great laboratory for the preparation of the food for the lungs, in the same way as the mouth is the laboratory for the preparation of the food for the stomach.

With this preface, I pass on to evolve a definition or standard of nasal obstruction. I must ask you, if we are to follow this subject step by step, to go back with me, and look at the anatomical condition of things in the normal body, and the physics pertaining to these parts when in normal physiological activity. The nasal cavities are surrounded by rigid bony walls, and separated from each other by a thin partly cartilaginous and partly bony septum into two equal and symmetrical cavities. Each cavity communicates in front, via the external nose, with the air, and posteriorly each cavity opens into the cloaca of the pharynx, and so becomes the highway to the larynx and lungs. If the nose be of no account to respiration, surely the mouth would be a larger, easier, and more direct inlet and outlet for the air in its passage to and from the lungs. Why go by the outer circle, when the inner circle is shorter, broader, easier and more direct?

The object attained by the air passing through the nose and not the mouth is to insure its being warmed to close upon 100° F., moistened to saturation, and filtered from all irritating and injurious particles of dust suspended in the atmosphere. And this for very, very good reasons: cold air at first contracts the vessels in the respiratory mucous membrane, but subsequently dilatation sets in with accompanying catarrh. Dry air inspissates the mucus in the narrower parts of the respiratory tract, and so renders the functions of the ciliated epithelium nugatory, induces collections of inspissated mucus on parts, and so induces coughing to remove the same. The air should be filtered to get rid of foreign particles, and so lessen the chance of the direct introduction of the tubercle bacillus and other germs to the lungs.

The normal physiological function of respiration is performed unconsciously, and repeated some 20,000 times in the twenty-four hours. This rapid and frequent filling and emptying of the lungs that follows the expansion and contraction of the chest wall is only rendered possible by maintaining the normal patency of the upper respiratory tract; any obstruction to inspiration would upset the normal frequency of respiration and cause dyspnoea.

A normal nasal respiratory tract is one capable of conducting air to the lungs with sufficient rapidity to instantly make up the deficit, and equilibrate the lessened tension of the air in the lungs caused by the sudden expansion of the chest cavity. A nasal respiratory tract not capable of supplying air to the lungs day and night at the normal rate of inspiration, and without the consciousness of the individual, is an abnormal and obstructed nasal respiratory tract, and the owner of such may be said to suffer from nasal obstruction. In other words, the necessity of supplementing nasal respiration by oral respiration, or mouth-breathing, is proof of nasal obstruction. Any evidence of mouth-breathing by day or night, and more especially by night, is evidence of deficient nasal respiration, and so evidence of nasal obstruction.

Mouth-breathing by day or night is evidence also that the physiological functions of the nose—the warming, the moistening and the filtering processes so admirably performed by the nose—are more or less in abeyance, and so lost to the respiratory function.

Depending as our definition does on these physiological facts connected with the nose, we may logically expect that a case of complete nasal obstruction, such as may be caused by polypi on both sides, would present one or more of the following symptoms. A nose when thus completely obstructed would be a typical case of mouth-breathing.

In the abstract it would be possible to state that, given a person in this condition, certain symptoms of affections of the nose, throat, ears, lungs and general health would probably supervene. He would probably be deaf, and might have a discharge from one or both ears. He would have a sense of discomfort and fulness in the nose, with at times a copious discharge and marked intermittent headaches. He would probably have marked post-nasal catarrh, some pharyngitis, cough and dryness of the throat in the morning. Added to this, he would be liable to winter cough and bronchitis, and more than likely to attacks of asthma. The digestion would probably suffer, and this, again, would induce a condition of neurasthenia and a feeling of something being wrong. Few of us present would refuse to admit that such a case of nasal obstruction as I have indicated might, and probably would, have one or more, or all, the symptoms enumerated as a direct result of the mouth-breathing.

Such being the symptoms which we clinically find in mouth-breathers, it will be as well at this point to study the underlying physical basis on which they depend.

Now, the first question that presents itself is, When the air passes to the lungs via the mouth, and not the nose, what is the physical and pathological effect, if any, upon the nasal cavities and nose proper? I am well aware that, although the nasal respiratory tract may be quite patent and adequate for normal respiratory purposes, one can voluntarily ignore this passage and breathe entirely by the mouth.

We will, therefore, first study the effect of mouth-breathing on an unobstructed nose. Under these circumstances, what is the physical condition of the nasal respiratory passages, or, in other words, what is the effect of short-circuiting the respiratory tract? In the first place, the physiological functions of the nasal mucous membrane are in abeyance, and consequently the air passes into the throat, larynx and lungs much in the same condition as it entered the portals of the mouth—that is to say, more or less dry and cold. The pathological effect of this may be, as we have seen, catarrh of the pharynx and larynx, associated with cough and other unpleasant conditions. Has the passage of the air to the lungs via the mouth any other effect?

I maintain it has. It has a physical as well as a pathological effect. The fact that the nose is temporarily put out of gear or in a state of disuse absolves the dilator muscles of the nose from their functions. They no longer dilate during each act of inspiration, and there is, consequently, a tendency of the wings of the nose to

collapse. The weakest point is that part not stiffened with cartilage, and is opposite the junction of the vestibule with the nasal cavity proper. In mouth-breathers, there is a marked pit or depression on the alæ of the nose at this spot.

This point may be compared to the rima glottidis in the larynx. It is the narrowest part of the nasal respiratory tract, and the one most easily obstructed. The interior of the nose may be made quite patent and healthy, and yet collapse of the nose from disuse may remain, and cause complete obstruction. The dimple on the outer aspect of the wings of the nose is diagnostic of the condition and pathognomonic of mouth-breathing.

Long-continued mouth-breathing, or disuse of the nasal respiratory functions, begets more or less complete atrophy of the muscles and tissues of the external nose, with collapse of the alæ, and gives a sharp and pointed expression to the features.

I am of opinion, then, that mouth-breathing may induce or cause nasal obstruction from disuse or collapse of the nose valve. The next proposition is, Does oral respiration, or mouth-breathing, produce any effect upon the interior of the nasal cavities? Undoubtedly, yes.

The air on its way to the larynx passes the opening into the naso-pharynx and nasal chambers, and, according to a well-known law of physics, abstracts part of their contents.

This with a normal anterior nasal opening would be rapidly repaid, and the tension equilibrated. Not so in cases of long-continued mouth-breathing, where atrophy and collapse of the nasal valve has set in. The portion of air abstracted is not adequately repaid; it is either too long in arriving or too little in amount, and the tension is not equilibrated, so that flushing of the whole mucous lining takes place from unsupported intravascular pressure.

A Siegle's aspirator, as used for the ear, will afford you an excellent example and proof of this. Having properly fixed the instrument into the ear, on compressing the ball, even the thick, non-vascular lining membrane of the auditory canal is seen to grow pale.

On allowing the ball to expand, the whole lining membrane becomes a bright red. The same occurs in the nose, where the lining membrane is highly vascular, and the vessels are thinner walled, and the cellular tissue more lax and abundant.

The abstraction of the smallest quantity of air from the nasal chambers and post-nasal space by the stream of air on its way to the lungs, *viâ* the mouth, if not instantly compensated by a corresponding inflow from the outside air, *viâ* the anterior nares,

will cause a lessening of the tension of the air in the nose and accessory cavities.

This lessened tension will be responded to by the lining membrane of the nose and accessory cavities as a general redness or flushing of the parts, and this in direct proportion, of course, to the degree of rarefaction.

This, I hold, is a physical fact. Upon the recognition of this fundamental physical fact rests the whole science and treatment of affections of the throat, ear, nose and accessory cavities.

I have taken a condition of things that does not exist in Nature—namely, mouth-breathing with a perfectly healthy and physiologically adequate external nose and nasal chambers; and I have shown that, even in this impossible and theoretical condition of things, with an unobstructed and healthy nasal tract, the effect and tendency of mouth-breathing is to induce, not only anterior nasal obstruction by collapse of the nasal valves, but general lessened capacity or obstruction from swelling and engorgement of spongy and mucous lining of the nose and accessory cavities.

I have described to you the collapsed, atrophied, pointed, and pinched nose of the mouth-breather; one other physical alteration is often apparent.

The mouth-breather, in order to keep open the oral slit, partly raises the lower lip, and in doing so uses a muscle, the levator labii superioris aequalis nasi, and so involuntarily and unconsciously raises and arches the lower border of the wing of the nose. This disfigurement is very apparent in some cases of nasal obstruction, and can be altered and done away with by curing the nasal obstruction, and using the nose, and not the mouth, as the respiratory inlet.

The peculiar arrangement and formation of the external nose has never been sufficiently recognised; nor has the fact of its being a valve, regulated and presided over by several distinct and more or less powerful muscles, been taken into consideration in the diagnosis and treatment of diseases of the nasal chambers.

If you will go to the Zoological Gardens and watch the seals and sea-lions swimming, you will observe that before diving these animals completely close the nasal opening by the sphincters of the nose, and widely open it by the dilators when arriving at the surface. These same muscles are present in the human nose, and are none the less important in regulating the capacity of the portals of the respiratory tract.

One may frequently observe in cases of hemiplegia, that on the hemiplegic side of the face the wing of the nose is collapsed, and

consequently that side of the nose is obstructed and lost to the respiratory function. In deep chloroform narcosis and some head injuries, nasal respiration is in abeyance from loss of power in the dilators of the nose.

To make matters clear, I will sum up my contentions so far :

That mouth-breathing, if persisted in even in the hypothetical condition of a healthy and patent nose, would ultimately induce anterior nasal obstruction from atrophy, following disuse of the nasal valve.

That this would be followed by swelling of the lining membrane of the nose and accessory cavities from vascular dilatation; and that this, again, would lessen the capacity of the nasal respiratory tract, and tend to set up nasal obstruction. A vicious cycle is set up. Mouth-breathing tends to obstruct the nose, and this very obstruction maintains and continues the mouth-breathing.

Beyond the fact that the external nose itself is liable under certain conditions to be a source of obstruction to nasal respiration, is there any natural condition or arrangement of the clothing or lining of the rigid walls of the nasal chambers that would account for the ease with which the nasal cavities may become obstructed, and the nasal respiratory function lessened or in abeyance ?

Although the framework of the nasal chambers is bone, and admirably fitted to maintain the cavity and capacity of these chambers, the necessity of placing within them an organ capable of performing the various physiological functions of the nose discounts to some extent the nose as the main respiratory inlet.

We have lining these cavities and the various ledges and recesses a mucous membrane at once remarkable for its histological characters and physiological functions, varying according to the part of the nasal chamber it may happen to line.

In the vestibule, the lining membrane is in a transition state between skin and mucous membrane; it secretes mucus, but still retains the hairs and the sebaceous glands proper to the skin. It is firm, and closely adherent to the inlet of the nasal chambers, and not liable to any appreciable swelling or turgescence.

On entering the nasal cavity, we find the mucous lining practically divided into two areas—the respiratory and olfactory.

All that portion in a horizontal line above the lower border of the middle turbinal body is the olfactory; and the broader and more extensive surface below this line the respiratory.

Now, it is the respiratory area that we are more particularly interested in; and at the outset I would say, if it were not for the presence in this area of the lower turbinal body we should hear

very little of nasal obstruction, and the occupation of the otologist, rhinologist, and laryngologist would be extremely limited. The lower turbinal bone extends from before backwards, right in the path of the inspiratory stream, and encroaches on the posterior to the anterior nasal opening. It is covered with a membrane of peculiar constitution, in so far as it is extremely thick, measuring at times from $\frac{1}{8}$ to $\frac{1}{2}$ inch. It has many vascular cavernous spaces in it, resembling erectile tissues, and is capable of sudden contraction and dilatation, resembling true erectile organs.

This erectile tissue is more pronounced, it so happens, opposite the anterior and posterior openings of the nose, and when distended is capable of occluding both anterior and posterior openings completely, and so capable of stopping nasal inspiration on one or both sides.

Now, a close study of the behaviour of this tissue in its various physiological and pathological conditions is a key to the understanding of the various phases of nasal obstruction and the many consequences arising therefrom.

A perfectly healthy individual with a normally constituted nasal organ, and placed always under normal circumstances, would no doubt theoretically pass through the whole span of his existence without even a temporary obstruction to his nasal respiration such as is experienced in a common cold.

But when one considers that such a condition of things does not and cannot exist, that the child in many cases is born with an affection of the mucous lining inherited from his parent, that his membrane may be affected by the various constitutional and local complaints of its owner, that errors in diet, errors in environment, and errors in the constant variations and purity of the inhaled air, all may have a disturbing influence on the proper physiological function of the turbinal body—can we be surprised that the normal physiological working of this organ is frequently upset, and ends in dilatation and obstruction?

The air enters the nasal chamber some 20,000 times a day, and should continue to do so without intermission during the whole life of the individual. The functional activity of the turbinal body is ceaseless, and, for its size, exceeds the functional activity of any other organ of the body. It is calculated that 2 quarts of water a day are given up to the inspired air by this body and the lining of the nasal respiratory tract; that all the air that enters the larynx, no matter what the outside temperature may be, is warmed to near the temperature of the body.

This is no light duty. The pathological tendency of any organ

is in direct proportion to its functional activity; therefore the pathological tendency to temporary and permanent dilatation, or to engorgement from relaxation of vasomotor tone, and consequent hypertrophy, is apparent.

Ninety-nine cases out of every hundred of nasal obstruction are due to this cause. The dilatation may be temporary, intermittent, or permanent; but, still, the tendency is there, the tone is lost, and nasal obstruction is the result.

Nothing is more common than for a patient to tell one that he is all right during the day when he is up and about, that he can breathe through the nose with ease and comfort, and can go upstairs or even take active exercise with the mouth shut; but directly he places his head on the pillow a very short time elapses before his nose is completely blocked. The explanation is simple: the tone of the tissue is so lax that the extravenous pressure caused by the horizontal position is sufficient to dilate his turbinal bodies and stop his nasal respiration. And many a time have I been told by a patient that when in bed the side of the nose, even, which is below is the obstructed one, and on turning over the clear side becomes obstructed and the obstructed side clear. The effect of gravity through a range of four or five inches is sufficient to fill one side and free the other.

Loss of tone of the turbinal bodies with or without hyperplasia is the commonest cause of nasal obstruction, and this, like atrophy, may be strictly limited to one side; but in the great majority of cases both sides are affected, and if one side be affected first, the other side follows sooner or later.

The recognition of the various degrees of this condition is difficult, but, still, with a knowledge of what to look for and a proper subjective examination of the patient, a correct diagnosis can be made.

To illustrate the points of the diagnosis, I will give you an illustration of a case of atonic turbinal body which set up chronic posterior arytænoiditis, general pharyngitis with granulations on the pharynx, indigestion, and general deterioration of health. Quite lately a gentleman living in France, a medical man, at the instigation of Dr. G. Herschell, brought his daughter to me for my opinion.

She was about eighteen years of age, of a sallow, muddy complexion, and pitted about the nose, chin and mouth with *acne indurata* and *acne rosacea*. Her chief complaint was discomfort in the throat with hemming cough continuing more or less all the time.

Dr. L—— had consulted several specialists in Paris, Nice and London, with the result that most of them differed except on one point, and that one point was that the nose was perfectly healthy and unobstructed. They were all agreed so far, but they could not account for the constant hemming cough, just as if it were to clear some little thing away, the general overmoisture and vascularity of the throat, the tendency to sore throat and to catch cold, and the indigestion and general want of tone.

Whatever they did or said, they did not cure the young lady's trouble, or her father would not have brought her to me. I have stated there was posterior arytanoiditis, general overvascularity with increased moisture in the pharynx, and some post-nasal catarrh. If the nose was healthy and quite patent, and the physiological functions properly performed, what was the cause of the condition of the pharynx and larynx? Every effect has a cause. A patient does not get in this condition without good reason. It was not from syphilis, or tubercle, or gout, or alcohol, or smoking, or anything direct that one could make out. Moreover, it baffled all the attempts at treatment of these various specialists; it continued, it was not cured, and why? It was a case of nasal obstruction, more especially at night. True, during the day, when up and about, the nose was clear, and when examined by me there was ample room for respiration. On cross-examination this lady admitted that her mouth and tongue were dry in the morning, that the hemming cough discomfort was worse till she had taken food, and she had, when I mentioned it, noticed that the nose was not clear at night. I did not rely upon the patient's statement entirely, nor did I arrive at my diagnosis by the process of exclusion.

I examined the nose, and what did I find? Well, in the first place there was then ample room for nasal respiration; in no sense could one say that the nose was obstructed.

The mucous lining of the nose was of a liver-red colour, with inspissated mucus in patches at various points indicating general congestion of the interior. On the septum, opposite each lower turbinal body, was a deep groove, or sulcus, running from before backwards, its concavity corresponding accurately with the convexity of the turbinal body. There could be no doubt that the turbinal body had formed that groove, and when distended rested in and accurately filled that groove.

No further evidence was required. I ordered a mild alkaline antiseptic wash for a week. I then with the galvano-cautery pinned down the most prominent parts of the turbinal body to

prevent it swelling, much in the way that a button is put on the seat of a chair, and with the help of a little chloride of zinc spray to the larynx sent this patient back to France practically cured in less than one month from the commencement of treatment.

This was, then, undoubtedly a case of nocturnal nasal obstruction. The congestion of the nose, post-nasal space and pharynx was started and maintained by the laboured inspiration necessary in these cases.

Laboured inspiration means delay in compensating the tension of the air in the respiratory tract, and this means vascular dilatation from unsupported intravascular pressure.

I let in the air with the galvano-cautery, the tension was rapidly equilibrated, the vascular turgescence quickly subsided, the consequent oversecretion disappeared, and the arytenoid cartilages were no longer irritated by the constant dribbling of mucus over their surface into the laryngeal box. The hemming cough was no longer requisite to drive the secretion out again. Mucus in large quantities no longer passed into the stomach to impede digestion, and the tone and general condition of the patient improved.

This is the history of 99 out of every 100 cases of laryngeal catarrhs, huskiness and morning cough, sore and uncomfortable throats and the tendency to catch cold, and the general catarrhal condition of the upper respiratory tract. It all means mouth-breathing from nasal obstruction.

Unfortunately, the effects of atony and dilatation of the turbinal body, such as I have endeavoured to place before you, are not limited to the respiratory tract proper.

We have, passing out from the walls of the nose and nasopharynx, certain passages or openings communicating with cavities and chambers of considerable importance. These chambers or cavities are one and all cul-de-sacs, and communicate only with the nose or naso-pharynx, and that by, in most cases, extremely small openings.

Each cavity is lined by mucous membrane continuous with that of the nose, and is liable to be affected by the same pathological and physical conditions as the nose. Affections of the frontal, ethmoidal, sphenoidal, and maxillary sinuses may be originated or kept up by obstructive conditions of the nose.

Catarrh may spread into one or any of these cavities. The opening into the cavity becomes obstructed, and the products of catarrh accumulate and may form an abscess. Take the tympanic

cavity as the best and commonest instance of this state of things. Nasal obstruction in these cases is fatal to a speedy restoration and cure. The very physical condition of nasal obstruction enhances and keeps up the occlusion of the only outlet to the discharges.

In the case of the tympanic cavity, it empties itself usually by perforating the tympanic membrane. But in the case of the frontal and maxillary sinuses the walls are bony, and greater difficulty is experienced in getting rid of the contents.

Whatever surgical procedure you adopt to empty the contents, your first object should be to restore the patency of the natural outlet into the nose, and see that the outlet is maintained by freely ventilating the nose. A case of ear discharge will not get well unless you restore the natural patency of the Eustachian tube.

I will go one step further. I maintain that obstruction to nasal respiration may set up a rarefaction of the air contained in each of these cavities, and cause a congestion of the lining membrane and a possible outpour of fluid and blockage of the natural vent, although there be no previous disease or catarrh present.

Take the tympanic cavity, where we can see the process developing. Blockage of the openings of the Eustachian tubes leads to deafness, which means that the air is absorbed by the lining of the closed cavity, and the drum-head is driven in by the unsupported atmospheric pressure. An examination of the drum-head will now show no fluid present, but in twenty-four or forty-eight hours, if the obstruction be maintained and air not supplied to the tympanic cavity, and the intravascular pressure is not equilibrated, fluid is poured out and marked vascularity is apparent down the handle of the malleus and in the neighbourhood of the short process.

Occlusion of the frontal and antral openings is followed by the same result. As long as the nose continues to be blocked, the deafness will remain. Treatment directed to restore the patency of the nose will restore the patency of the Eustachian tube, and the hearing will suddenly return.

The difficulty of treating an acute rhinitis is that the occlusion set up by the congestion is the prime factor in maintaining the congestion, from the necessity of carrying on respiration by the supplemental respiratory opening, the mouth. If you can only let air into the nose by any artificial means, you will cure your rhinitis in half the time.

Then, I maintain that the key to the prevention and treatment of all disease of the accessory cavities of the nose, including the tympanic, is to maintain the natural physiological condition of the

nose, and see that its respiratory capacity is sufficient to rapidly equilibrate the air in the respiratory tract during inspiration.

I cannot consume your time by giving you illustrations, but you must believe me when I say my note-books are teeming with cases that support my contentions to the letter.

In chronic deafness with discharge and tinnitus, it is just as important to see there is a free inlet of air to the respiratory passages as in the acute cases.

Chronic deafness, or what is known as dry catarrh (a more ludicrous term could not well be invented), is nothing more or less than chronic Eustachian obstruction, due in the great majority of cases to chronic nasal obstruction from turbinal atony or hypertrophy. To keep on daily using Politzer's bag is like attempting to fill a sieve with water. The daily supply of air is rapidly absorbed, and the patient is left *in statu quo ante*. A certain amount of thickening of the lining of the tympanic cavity is common from the over-vascularity attendant on the diminished air contents, and in not a few cases where the catarrhal process has in addition invaded the tympanic cavity adhesions have taken place between the tympanic membrane and promontory, and between the articulations of the ossicles.

This is all the more reason for restoring the patency of the Eustachian tube, to insure a constant and free supply of air to the diminished tympanic cavity, and by this to supply a medium for the conduction of sound-waves by the active remnant of the drum-head to the foramen rotundum or stapes.

Whilst any portion of the drum-head remains capable of vibrating, that portion, provided air be present in the tympanic cavity, is capable of conducting aerial vibrations to the internal ear. No conduction of aerial vibrations *in vacuo* is possible, and any rarefaction of the air in the tympanic cavity renders the conduction of impressions from the outside world all the more difficult. I have acted on these principles now for many years. I have been agreeably rewarded by finding that very few cases present themselves that do not mend, and quite a number of cases of long-standing deafness are considerably and permanently improved.

In the same way, in the last few years I have had the handling of quite a number of cases of chronic antral disease that had already been operated on and were wearing drains in the site of one or other tooth. The daily washing of the cavity had to be continued, and this much to the annoyance of the patients. The wash in most cases could be forced into the nose, and in some cases passed quite easily.

It was quite a common experience in the old days, before the proper method of treating the frontal sinus was known, for a discharge to continue from this cavity for one, two, or more years, without diminishing. As soon as the practice was established of opening the frontal sinus from the front, and freely restoring its natural communication with the nose, the convalescence was measured by days, not by years.

In the maxillary sinus, a free opening of that side of the nose associated with an enlargement of the ostium maxillare will go a long way in assisting you to cure the disease and render recurrence impossible. In the case of a doctor's daughter who was brought to me with a large abscess of the antrum bulging into the nose, a considerable opening into the antrum and in the neighbourhood of the ostium maxillare was sufficient to cure the disease without a counter-opening in the region of the teeth. The nose is the natural and proper outlet for all these discharges, and the warm, moistened and filtered air as supplied by the nose is their natural and proper contents. And now I come to a subject the importance of which cannot be overrated. It is the association of chronic turbinal distension and hypertrophy with, in many cases, a state of things as exemplified by this case.

The association of mouth-breathing with high palate, unsymmetrical upper jaw, prominent nose, open mouth, and thin, flattened face is a constant one.

On attempting to reason this subject out at a meeting of the Odontological Society, I was met by a perfect hurricane of adverse criticism. I was told that all these cases were hereditary, and there was nothing more to be said on the subject.

It reminded me very much of the reception a dog gets in the streets of Constantinople if he happens to leave his own street and wander to another.

Whatever meaning the members of the Odontological Society attach to the term "heredity," they are welcome to it, but it at all events does not mean that any given person with a *facies* such as I have indicated must of necessity be born with the same.

I am old enough to have seen now many instances of children with beautifully-formed faces, symmetrical dental arches, and perfect nasal respiration, become in after-life quite altered. The upper arch has become so distorted that the molar teeth on each side are so approximated that the teeth of the upper jaw rest only by their edges on the teeth of the lower jaw. Whereas the incisor teeth of the upper jaw protrude forwards and hang in front of the incisor teeth of the lower jaw. The whole upper jaw may become

atrophied, nasal respiration almost entirely suspended, the palate highly arched and V-shaped, and the mouth constantly open.

Why this change? Was it the evolution of the hereditary tendency?—which in these cases did not exist, the parents in all these instances having remarkably well-formed upper jaws and being particularly good-looking.

I can produce the same effect on any young animal chosen indiscriminately by blocking its nose for a long time with cotton-wool. Is it unreasonable to suggest that turbinal atony and hypertrophy in the young and growing subject will act as the piece of wool in the nose of the young animal?

From what I have said as to the alteration in the air-pressure inside the nose consequent on anterior occlusion, you will gather that a small increase of pressure from without constantly applied on the walls of the nasal box is capable of pushing up the palate, disarranging the upper mandibular arch, and causing general atrophy and an undeveloped condition of the whole upper jaw. Moreover, if these cases are taken in an early stage, and the nasal respiration restored, the constant stream of air passing through the nose moulds and expands the upper maxilla, and in time the greater part of the deformity will disappear.

One point more. It is a matter of common knowledge that children affected with post-nasal growths or enlarged tonsils, or both, often become pale, thin, anæmic, listless, and generally out of sorts. I myself have never heard a satisfactory explanation offered for this associated condition—I say associated, for the association is fairly constant.

In grown-up persons who suffer from post-nasal catarrh and pharyngitis and chronic laryngeal catarrh, I have noticed two very prominent symptoms—chronic flatulent dyspepsia and a suffused and, at the same time, leaden appearance of the complexion. The skin of the face becomes thick, heavy and patchy, and often the vessels of the conjunctiva are permanently dilated.

I take it that in both cases a large quantity of unhealthy mucus finds its way into the stomach. This in the child probably interferes with nutrition, and in the grown-up person is the cause of the dyspepsia. The want of proper oxidation at night is the probable cause of the altered and damaged complexion.

Whatever be the explanation, it is our common experience that, if the nasal respiration be restored and the nose and throat trouble cured, in both cases nutrition improves and the patient is speedily restored to health.

INSTALLATION OF THE MONUMENT TO THE MEMORY OF PROFESSOR CHARLES DELSTANCHE OF BRUSSELS.

It is now nearly a year since the science of otology has lost one of its most faithful champions in the person of Professor Charles Delstanche of Brussels, who was the founder of the first otological clinic in the hospitals of Belgium, and was a most prominent expositor of this portion of the healing art.

The installation of his bust will take place on January 20, 1901, in the Otological Clinic of the Hospital of St. Jean de Bruxelles.

All will join with us most cordially in offering this homage to the memory of our much-regretted confrère, to whom was accorded the Lenval Prize at the last Otological Congress held in London in 1899.

SOCIETIES' MEETINGS.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

Sixtieth Ordinary Meeting, November 2, 1900.

F. DE HAVILLAND HALL, M.D., *President, in the Chair.*

THE following cases and specimens were shown :

A Case of Mucous Polypus of the Larynx. Shown by Mr. STEWART.

A woman, aged seventy-eight, for eleven years has had catching of the breath when laughing, and for three years increasing hoarseness. Examination shows a mucous polypus occupying the whole of the right vocal cord. In my experience laryngeal mucous polypi are comparatively rare, and very rare in old people. They usually occur in middle life. Mackenzie in his book gives only one case over fifty, and that was in a woman aged seventy.

THE PRESIDENT suggested the removal of the growth. It was a cyst, and could be readily taken away.

Mr. STEWART had suggested operation, but the patient said the tumour had been present from birth, and she would rather keep it.

Specimen of Cancer of the Esophagus, causing Complete Laryngeal Paralysis. Shown by Mr. W. G. SPENCER.

The patient from whom the specimen was taken was admitted into hospital with rapidly progressive laryngeal dyspnoea. It was difficult to examine the larynx on account of the dyspnoea, and therefore no exact diagnosis could be made, but it was particularly noted that there was no dysphagia.

I explored the larynx by thyrotomy, and found the left cord absolutely immobile and the right scarcely moving at all. The left vocal cord was completely removed, and the patient did well, his breathing being quite relieved. But soon after the wound had healed he developed a tracheo-oesophageal fistula which was quickly fatal.

The specimen shows extensive epitheliomatous ulceration of the oesophagus, which has extended to the trachea and the glands so as to involve the recurrent laryngeal nerves. The position of the left vocal cord is occupied by a fine scar. The temporary relief to the patient was even more satisfactory than a tracheotomy could have been.

The PRESIDENT said that the case was originally under his care. The causation of the paralysis was extremely obscure, nothing definite being ascertainable. The operation of thyrotomy and excision of the vocal cord as performed by Mr. Spencer, though objected to in the past, certainly gave the patient considerable relief, and it was, perhaps, the best thing that could be done.

Sir FELIX SEMON said they all knew that, in cases of thyrotomy for malignant disease, when a vocal cord was removed a cicatricial band formed at the level where the vocal cord was removed. Under these circumstances, the advantage of the operation so far as the relief to breathing was concerned seemed to him very doubtful. If the patient had lived a little longer than he did, one would have expected a recurrence of the stenosis to have occurred. This theoretical reasoning found a practical corroboration in the experience that when a vocal cord was cut out in roaring horses no lasting benefit whatever to the breathing was effected.

Mr. SPENCER questioned whether in thyrotomy sufficient growth was always removed. In the specimen only a fine scar was to be seen. Had this patient lived longer, would he have had a cicatricial band?

Sir FELIX SEMON remarked that it was impossible to remove more than was done in a case of malignant disease, where everything in the neighbourhood of the growth was removed.

The PRESIDENT suggested the occasional devotion of a meeting to the exhibition of sequelæ of cases previously shown to the Society ; such cases were apt to be lost sight of, and much valuable information was thus wasted.

Case of Progressive Sinking of the Bridge of the Nose, following Bilateral Hematoma of the Septum. Shown by Mr. W. G. SPENCER.

About two years ago the boy had a fall on his face. There was no displacement nor fracture of the nose, but on each side a well-marked hæmatoma just within the anterior nares. These were absorbed without suppuration, and the nose appeared to be unaltered by the accident ; but a month ago the boy was again seen, as a progressive sinking of the bridge of the nose had occurred. On examination the septum is seen to be twisted, the muco-periosteum thickened, and the nasal passages much narrowed. There is no evidence of inherited syphilis.

The case is exhibited because the injury seems to have set up a chondritis and softening such as may happen in joints after slight injuries. There is always much doubt as to whether spurs and deviations of the septum are congenital or traumatic in origin. The case shows that these deformities may arise gradually some time after a slight injury, and yet be really due to it.

The PRESIDENT related the case of a lady, of about sixty, who had complained of a swollen septum which interfered with nasal respiration, and of pain in the arch of the nose, which was somewhat reddened. At the time he had not taken a grave view of the case. Ten days after seeing the patient there was a rapid increase of the swelling. An abscess formed ; the cartilage came away, and in a fortnight the bridge of the nose was sunken. At his examination of the case he had used cocaine, to the application of which the patient had attributed the subsequent trouble. This was an extremely rapid case, in which there was no history of syphilis, and absolutely no cause to explain the mischief. It formed a considerable contrast to the gradual progression which had taken place in the case under discussion.

Dr. STCLAIR THOMSON asked the President whether in his case the nasal bones fell in or the end of the nose.

The PRESIDENT said the nasal bones had fallen in.

Dr. STCLAIR THOMSON had watched carefully one or two cases of hæmatoma of the septum. One was of interest by reason of the suppuration which had occurred : it seemed to be a hæmatoma, but was in reality an acute abscess. He attributed it to infection from a suppurating maxillary antrum. A portion of the cartilage came

away. All the cases recovered without any injury to the appearance of the nose. He would suggest in this case that the collapse of the bridge was due to inherited syphilis. Certainly there was no distinct history, but the mother had had miscarriages and dead children, and she states that there is sometimes a nasty smell from the boy's nose. There was still a good deal of purulent matter about the middle turbinals.

Mr. PAGET said it was surely inconceivable that loss of the cartilaginous septum could have any effect on the shape of the arch of the nose.

Dr. DUNDAS GRANT asked what degree of disfigurement there was at the time of the injury. Might not the distortion be part of the original injury?

Dr. WATSON WILLIAMS had seen a patient in whom he could find no portion whatever of the cartilaginous septum. There was no external deformity of the nose. The patient was open and frank, and denied any history of syphilis.

Mr. BABER said it was commonly held that no amount of destruction of cartilage was sufficient to account for collapse of the nose; the tip of the nose might be affected, but not the bones. He was of opinion that it would be most interesting for members to see a photograph of the patient taken before the accident.

Dr. LACK said that nearly every hæmatoma and abscess of the septum was due to an injury. In his experience such injury was always attended by some subsequent deformity and depression of the tip of the nose, though he granted it might not be evident for a few weeks, until the swelling produced by the injury allowed the result to be seen.

Mr. VINRACE asked whether the pharyngeal condition existed at the time of the accident. There was now present a condition of the naso-pharynx which he thought must be of constitutional origin and not the result of injury.

Dr. WYATT WINGRAVE considered that deformity was not surprising, since the structures were only partially developed. In adults deformity was rare, unless the traumatism or subsequent inflammatory changes involved more than the septum, such as the nasal bones and nasal process of the maxilla.

Mr. SPENCER, in reply, said the boy's nose was mainly altered in the cartilaginous portion; there was no alteration in the roof or bony part. He had watched the hæmatoma disappear, until the nose was quite free. Then arose marked progressive nasal obstruction, and later appeared a discharge of muco-pus and crusts, which he had left alone to show the members. There was no ulceration

or abscess. Inquiries had been made as to congenital syphilis with negative results; but it was impossible to exclude it with certainty. One heard of general practitioners being blamed for not having the nose put straight in such cases. Here was a case where, although there was no obvious damage at the time or a month later, after two years had elapsed there was distinct deformity of the nose. In adults there might be destruction of the lower end of the septum without any alteration in the shape of the nose.

Case of Laryngeal Growth in a Man aged Forty-nine. Shown by Dr. BARCLAY BARON.

Patient, a man aged forty-nine years, who has drunk hard, but denies syphilis, noticed a little dryness of the throat about a year ago, and some obstruction in May last, when he had a good deal of nose-bleeding. Since then the difficulty in swallowing has increased, but he can still swallow well-masticated meat; the breathing is obstructed, the voice is altered, and there is pain shooting up into the right ear; the larynx is practically filled up with a large growth, with irregular surface covered with creamy secretion; the epiglottis is pushed towards the left side. The growth increases in size, but it is believed to be an innocent tumour.

The PRESIDENT said he had never seen such a large growth in the larynx.

Dr. WILLIAM HILL said that tracheotomy would probably be done unless members thought it unnecessary. Dr. Baron did not think it was malignant, and asked for a diagnosis. It had not yet given serious trouble to the patient.

Dr. DUNDAS GRANT asked if there was any certainty as to which part of the larynx it grew from.

Sir FELIX SEMON said there was a distinct margin between the epiglottis and the growth.

Dr. WATSON WILLIAMS said it was attached low down and laterally to the ventricular band.

Ethmoidal Cell Cutting Forceps.

Dr. WATSON WILLIAMS showed some cutting forceps for opening up the ethmoidal cells, which had been made for him by Messrs. Mayer and Meltzer. The cutting ends were sharp-pointed, and turned up at an angle of 50° with the shank, so that they readily pierced the thin bony walls of the cells. He had found these forceps of great service in opening either the anterior or posterior ethmoidal cells in sinusitis, and in radical operations on nasal polypi.

Case of Laryngeal Tumour. Shown by Dr. HERBERT TILLEY.

A female, aged thirty-nine, whose chief symptom was hoarseness. She also had a troublesome cough. Laryngoscopic examination showed a sessile tumour, occupying the anterior two-thirds of the left ventricular band. It was congested, considerably raised above the surrounding surface, and had a granular mammilated surface. The vocal cords moved freely, although the left was sluggish compared with the right.

In answer to Dr. StClair Thomson, Dr. TILLEY said that suspicions of pulmonary phthisis existed, but that he was anxious to gain the unbiassed opinion of members who had only seen the growth, as many of its features did not suggest its tuberculous nature.

Case of Probable Primary Specific Ulceration of the Tonsil. Shown by Dr. DUNDAS GRANT.

A woman, aged thirty-two, was first seen on October 11, 1900, complaining of sore throat of three months' duration. It was followed at an interval of about one month by the appearance of a few brownish spots on the skin; more recently there has been a slight falling of the hair. On examination there was an enlargement of the right tonsil and an irregular ulcer occupying the region of its upper third. The glands at the angle of the jaw were slightly enlarged, and, according to the patient's account, had previously been larger still. The pain was most marked during swallowing. On the right anterior pillar there was an ill-pronounced opalescent patch, and the same, in a slighter degree, on the left one. There were no symptoms of genital inoculation, but the husband's tongue presented ample evidence of old-standing tertiary changes, with a slight erosion on each side. The primary inoculation dated more than twelve years back. During the first week the patient was treated by means of pills of mercury and opium, but the effect produced was comparatively slight. During the following week mercurial inunction was practised, with the result that at the end of that time the discomfort in the throat had very markedly diminished, and the ulceration on the tonsil had become less pronounced. The patient has advanced six months in gestation. Dr. Eddowes, who saw the rash during the first week, gave the opinion that it was a syphilide, but at present it is too indistinct to afford ground for a very definite opinion. The diagnosis is somewhat open to question, but there seems little doubt that it is specific, and of a primary rather than tertiary nature.

The PRESIDENT thought they were all agreed as to the diagnosis.

Dr. DUNDAS GRANT said that the change which had taken place had deprived the case of much interest. If members had seen the case a fortnight ago, before the treatment which had confirmed the diagnosis so absolutely, he thought the opinion of the Society would have been the same as his own.

The PRESIDENT had seen a case of undoubted primary chancre of the tonsil in which the result of the treatment was very rapid. The patient was thought to have malignant disease of the tonsil, but the improvement was so great that after a week the tonsil regained its normal size. Four or five weeks later the diagnosis was confirmed by the appearance of a secondary eruption.

Case of Alveolar Epithelioma of the Ethmoidal Cells and Antrum.
Shown by Dr. DUNDAS GRANT.

The patient, a woman, aged fifty-three, was first seen in October, 1900, on account of blocking of the left nostril, discharge, and loss of smell, with pain in the left nostril and cheek, swelling of the left cheek and in the orbit, pushing the left eye upwards and outwards. Her illness was of about nine months' duration, commencing with symptoms of cold in the head, and the formation of a polypus. At the end of July a polypus was removed, but on the next day the blockage was as complete as ever. Dr. Grant made a diagnosis of malignant disease, probably sarcomatous; but a specimen removed for microscopical examination was found by Dr. Wingrave to be of the nature of alveolar epithelioma. It was decided that a radical operation should be performed without delay. The superior maxilla was exposed. The disease was found to have eaten away the anterior wall of the antrum and a large portion of the floor and inner wall of the orbit. The incision was continued upwards on the inner side of the orbit, and the whole of the diseased tissue was scraped away from the ethmoidal cells, the lachrymal bone and os planum of the ethmoid being almost completely removed. The floor of the antrum was found to be free from disease, and the alveolar and palatal processes were therefore left in position, the rest of the superior maxilla being extracted. The raw surfaces were swabbed with chloride of zinc, 30 grains to the ounce; iodoform was insufflated, and the cavity was packed with iodoform gauze from the mouth, the external wound being carefully sutured. The packing was removed two days later, and the cavity was washed out with a weak Sanitas lotion. After other three days the stitches were removed, the whole wound having united with the exception of a small opening at the inner angle of the eye. The

patient was discharged on the fourteenth day after the operation, and returned home complaining of no other discomfort than conjunctivitis of the left eye.

Mr. SPENCER said that the saving of the alveolar process was an advantage. The growth was a burrowing carcinoma of the most malignant type, and one which offered a very poor prognosis. If Dr. Dundas Grant had succeeded in removing the whole of it he was very fortunate.

Mr. H. BETHAM ROBINSON referred to a case recently under his care where the growth in the antrum extended into the ethmoid, and before operating it was impossible to define its exact limits. He had removed the ethmoid freely up to the cribriform plate, but even then the disease was not eradicated, for the growth appeared again some weeks later.

Dr. DUNDAS GRANT, in reply to Mr. Spencer, said that he thought he removed all the growth, but it extended so close to the cribriform plate that discretion had to be used in scraping it away. Up to the present there is no sign of recurrence.

Case of Sarcoma of Thyroid Gland; Extirpation; Fatal Result.
Shown by Dr. DUNDAS GRANT.

The patient, a nurse, aged sixty-four, was the subject of an intensely hard swelling of the thyroid gland of about six months' duration. There was a slight myxœdematous swelling of the face, and considerable dyspnœa with tracheal stridor, worse on exertion. The larynx was displaced to the left side, and œdematous to such an extent that the vocal cords could not be seen. Swallowing was partially obstructed, and fluids tended to regurgitate into the larynx, giving rise to troublesome cough. There was no enlargement of the glands, and the thyroid rose during swallowing, though to a less extent than normal. The dangers of the operation being placed before the patient, she decided to submit to it rather than continue as she was. During the detachment of the left lobe of the thyroid, extreme laryngeal stridor supervened, and it was necessary to perform tracheotomy. The thyroid body was removed in its entirety, and on microscopical examination was found to be infiltrated with sarcoma. The patient rallied from the operation, but speedily began to acquire a very troublesome cough; fluids appeared to enter the air-passages through the larynx and through the tracheotomy wound in the trachea; the right lung became completely dull, and death took place on the fourth day. Regurgitation of fluids into the larynx is probably a very unfavourable symptom when operations on the air-passages are carried out,

involving great risk of septic pneumonia. In this case it might have been better if a tampon cannula had been introduced instead of a simple tracheotomy-tube, and if the extirpation wound had been left open and plugged with antiseptic gauze instead of being closed up. Tracheotomy could not have been performed before the thyroid gland was removed.

Case of Malignant Disease of the Larynx. Shown by Dr. DUNDAS GRANT.

The patient, a man, aged fifty-seven, came under observation on August 2, 1900, complaining of hoarseness and pain in his neck, of gradual onset, and of three months' duration. The larynx externally was normal to the feel, but now Dr. Grant thinks it is slightly spread out. On laryngoscopic examination the epiglottis was seen to be folded in to a considerable extent on the left side. The arytenoids were much swollen, especially the left one, which shaded off into a large thickened aryepiglottic fold; the left cord was invisible, but there was seen with great difficulty in the midst of the thickened tissue a fringe of a somewhat granular appearance, corresponding to the anterior half of the left vocal cord, or it might be growing out of the ventricle of the larynx. The right ventricular band was somewhat swollen, overhanging the cord. There was no history of specific infection and no history of phthisis in his family, although it was a little doubtful whether or not his father died of that disease. In his case, however, there was no evidence in the thorax, nor did the sputum contain tubercle bacilli. The nature of the case was not at all obvious, although the probabilities were in favour of its being carcinoma. The patient was put upon iodide of potassium (10 grains) with perchloride of mercury (1 drachm of the solution) three times a day. His weight decreased slightly, but when seen again in September there was practically no change in the condition; subsequently dyspnoea became marked, and it was necessary to perform tracheotomy. Dr. Grant had postponed this in view of the doubt which he felt that the disease might be tuberculous, in accordance with the impression it made upon an experienced colleague. The patient has improved very much in general condition since the tracheotomy, which is sufficiently exceptional in tuberculosis to make it justifiable to exclude that disease. There is little doubt that the disease is malignant, epithelioma or sarcoma, the extent of infiltration as compared with the amount of ulceration affording some probability in favour of the latter. The exhibitor abstained from the removal

of a portion for microscopical examination, as the patient had not consented to a radical operation.

Mr. SPENCER remarked that the man complained of pain in the ear, indicating infiltration of the posterior third of the tongue. He considered the case too advanced for successful removal.

Dr. LAMBERT LACK was doubtful about the diagnosis, but even if it were an epithelioma, he thought it better left alone.

Dr. GRANT was anxious to elicit an opinion as to whether this case was best left with the tracheotomy-tube as at present, or whether the risk of removing the larynx was justifiable.

The following microscopic specimens illustrating Dr. Grant's cases were shown by Dr. WINGRAVE:

1. Squamous epithelioma of larynx.
2. Alveolar epithelioma of maxillary antrum and nose. It apparently commenced in the glands of the inner wall of the antrum near the ostium.
3. Sarcoma of thyroid gland. Round-celled (small) variety, evidently commencing in the stroma. It had involved the whole of the gland, since none of the normal structure could be found. It was interesting, as it followed closely upon a sarcoma of the larynx, also under Dr. Grant's care, in which the thyroid gland was probably invaded secondarily, as much of its normal structure remained.

Case of Laryngeal Papillomata. Shown by Dr. WYATT WINGRAVE.

A girl, aged eight, was first seen in June, 1898, complaining of thick voice with occasional aphonia, gradual in onset, and of two years' duration.

Several small papillomata were seen at the anterior commissure, and one on the left cord in its anterior third. There were no adenoids, but the faucial tonsils were slightly enlarged. Since that date as many as twelve fragments have been removed, after each time the larynx appearing clear of growth.

The warts were treated also with formalin (1 per cent.) and salicylic acid, the latter affording the better result, but not removing the growth. In removal the ring curette proved more efficient than forceps or snare. Histologically each fragment was a digitated squamous papilloma. With regard to their pathology, Dr. Wingrave was inclined to consider them relics of an exaggerated vocal commissure, notwithstanding that the symptoms did not become marked until six years of age. Although there were no

adenoids, she was a confirmed mouth-breather, a habit of which her mother has nearly broken her.

The slightly enlarged tonsils were removed in January last, but this did not seem to materially influence the course.

When last seen her voice was fairly clear and strong, and the larynx had been free from growth since October 2, when the last fragment was removed. At present there is a slight thickening in the anterior commissure.

Dr. HERBERT TILLEY inquired what anæsthetic was used in the case, and, if a general one, what position the patient was placed in during the operation. He had recently removed a large papilloma from a child's throat (four years old) which on two occasions had almost caused asphyxia, and had been struck by the ease with which the operation could be performed when the patient was chloroformed deeply and maintained in the sitting position. Under such circumstances it was necessary to push the chloroform until the laryngeal reflex had just disappeared, and during the thirty seconds or so following to remove as much growth as possible before the reflex returned again.

Mr. VINRACE inquired why Mr. Wingrave ascribed the condition to a congenital cause, no symptoms having presented themselves until the child was five years old. It was difficult to understand how the original structure in its entirety failed to cause symptoms and alteration in the voice.

Mr. WINGRAVE, in reply, said that he had found cocaine was simpler, since the patient well tolerated inspection and manipulation. He did not consider the absence of voice symptoms for the first three years as evidence against congenital origin, since he remembered an instance in which symptoms of a congenital web of the anterior commissure were not recognised till the age of twenty-seven. He felt that the situation of the growth was much in favour of its congenital original.

Laryngeal Case for Diagnosis (? Tuberculous). Shown by Dr. STCLAIR THOMSON.

The patient is a draper aged forty-eight, who states that he has been hoarse for twelve months. There is slight though not marked dysphagia, but his weight has fallen from 10 stone 10 pounds to 9 stone 4 pounds. The right vocal cord is nearly entirely concealed by a smooth, round, red, soft-looking swelling of the right ventricular band, aryepiglottic fold, and arytaenoid. This swelling on phonation impinges on the left ventricular band, on which it appears to have caused some abrasion. Glands are not enlarged.

There is a specific history. The pulse is hurried (110), the temperature is $100\cdot2^{\circ}$, but the chest sounds are normal. The sputum has not yet been examined. Under small doses of iodide of potassium the obstruction has in a week sufficiently diminished to show a small portion of both cords, which are now seen to be pale and slightly ulcerated. Dr. Thomson was, therefore, now inclined to the diagnosis of tuberculosis.

The PRESIDENT considered the appearance was that of malignant disease.

Dr. DUNDAS GRANT wished to support Dr. Thomson's own diagnosis of tuberculosis.

Dr. STCLAIR THOMSON said he had only seen the patient twice. There was so much obstruction and catarrh that he did not at first like to give him iodide, but on 5-grain doses there had been some improvement in the last week. He wished for suggestions as to treatment. Probably everyone was agreed as to the necessity for tracheotomy. He would report again on this case at a later meeting.*

Case of Fracture of the Larynx. Shown by Mr. WAGGETT.

A female, aged fifty-two, in whom fracture of the thyroid cartilage had occurred as the result of severe pinching of the larynx between the fingers and thumb of a persecutor. Severe dyspnœa lasted for some days, external swelling was present, and much pain experienced.

At the present date, some two months after the injury, nothing abnormal could be seen by the mirror. External palpation of the somewhat enlarged larynx caused pain, and indicated the presence of an ununited fracture of the thyroid cartilage, separating the upper half of one ala from its fellow close to the anterior angle. The fracture was vertical above, curving to the right at its lower end. The semi-detached antero-superior portion of the right ala could be made to ride over the left ala. The voice was stated to have altered in character since the receipt of the injury, but the action of the vocal muscles showed no gross sign of impairment. He did not propose any surgical interference.

Dr. HERBERT TILLEY very much doubted if the feeling of crepitus in this case was not entirely due to the movement of the larynx on the vertebral column. He had, while the patient leant well forward, lifted the larynx away from the column, and could not obtain the crepitus, however carefully he manipulated the

* Since the date of meeting the report on the sputum shows the presence of tubercle bacilli.

larynx, but immediately the latter touched the spinal column the crepitus at once became evident. It was difficult also to conceive that the inflammation, which was evidently produced by the traumatism, should have so completely resolved as to leave the cartilaginous fragments loose. One would have expected the traumatic perichondritis to have firmly welded them together.

Dr. FITZGERALD POWELL thought, if fracture of the cartilage existed, it would result in severe and continuous dyspnoea.

Mr. PARKER said that he quite agreed with Dr. Tilley with regard to the possibility of obtaining crepitus on lateral movement of the larynx in most people, but in this case the crepitus was even more marked on the patient's swallowing, which was unusual. He therefore thought there was a fracture of the thyroid cartilage.

Dr. DUNDAS GRANT thought he felt a crepitus, as if there was fracture of the lower cornu of the thyroid cartilage, just above where it articulated with the cricoid.

Mr. WAGGETT, in reply to Dr. Tilley, said that he believed the crackling or crepitus of which the latter spoke had nothing to do with the fracture, but was such as could be detected when the larynx of any thin person was pushed from side to side over the underlying structures. In the present instance a fine crackle was produced when by lateral pinching the thyroid cartilage was distorted, an act which caused a portion of the right ala to ride over the left, leaving a sharply defined groove between the two.

In answer to Dr. Powell, he drew attention to the history of severe dyspnoea confining the patient to bed for three weeks.

Case of Hæmorrhage on the Vocal Cords.

Mr. CHARLES PARKER showed a case of hæmorrhage on the vocal cords in a woman aged thirty-five, a school teacher. The hæmorrhages were situated about the middle of the upper surfaces of either cord. The patient complained of hoarseness and aching of the throat after using her voice. There were no signs of any tendency to hæmorrhages elsewhere.

In answer to Dr. Lack, Mr. PARKER stated that he felt confident that when he first examined the case there was a hæmorrhage only on the left cord. She was examined by several people, and being rather intolerant, strained and choked a good deal, and on finally examining the case Mr. Parker found that a hæmorrhage had occurred on the right cord. This was more than a month ago, and yet both hæmorrhages remained unaltered.

The PRESIDENT had never before seen such an interesting example of this condition.

Dr. GRANT had brought before the Society the case of a young lady with sudden loss of voice—as if a hysterical attack of aphonia—which was accompanied by an effusion under the mucous membrane of the cord.

Abstracts.

NOSE, Etc.

Corwin, A. M.—*Etiology and Prognosis of Adenoids.* "Jour. Amer. Med. Assoc.," November 10, 1900.

The frequency of their occurrence varies, according to different authors, from 1.5 to 33 per cent.; but the average, probably, lies far under the greater figure and far exceeds the lesser. They are most frequently seen between three and fifteen years, but are occasionally met with at birth and as late as sixty to seventy years of age. In childhood lymphoid tissue is very abundant in the vault of the pharynx, and is prone to active inflammation and hypertrophy. Owing to the small size of the respiratory passages in children, functional interference occurs from this enlargement, which would be scarcely noticeable in adults. The increase in the dimensions of the post-nasal and pharyngeal spaces, which takes place rapidly during adolescence, may overcome a marked obstruction, should this remain stationary or slightly increase in size. This may in part account for the opinion that adenoids invariably disappear or rapidly decrease in size at puberty.

Among other causes for adenoid hypertrophy are the conditions of the general circulation favouring venous turgescence, such as intestinal torpor and other abdominal irregularities, or thoracic disease. Heredity is considered an important element, as well as tuberculous and syphilitic dyscrasias. Bacterial agents exert marked influence; hence the frequency with which adenoids date from an attack of diphtheria, whooping-cough, influenza, or the exanthemata. Tubercle bacilli have been found in from 3 to 12 per cent. of the adenoids examined by different observers.

The results are stunting of growth, chest deformity, the facial expression of the mouth-breather, and especially impairment of hearing (74 per cent., according to Meyer). Not all cases of adenoids need removal, but it should never be delayed if the ears are affected.

Oscar Dodd.

Cryer, M. H.—*Modes of Infection of the Maxillary Sinus.* "Jour. Amer. Med. Assoc.," November, 1900.

The general idea is that the maxillary sinus is more frequently infected through diseased teeth than from any other source; but the author concludes, after the investigation of a great many specimens, that it is not so. After considering the embryological development of the parts, he concludes that it is through the common communication between the frontal sinuses, the ethmoidal cells, and the maxillary sinus that infection is generally conveyed to the antrum from the cells

and sinuses above it. The author also believes that there are more cases in which teeth are lost by diseases of the antrum than cases where primary disease of teeth causes infection of the antrum.

Oscar Dodd.

De Blois.—*Fractures of the Nose.* "New York Medical Journal," October 27, 1900.

Dr. de Blois points out that in the majority of cases of so-called "broken nose" no fracture in reality exists. What does occur might more properly be described as a dislocation, the nasal bones being separated at their internal borders from the superior maxillary. While this is the most common form of "broken nose," there may in addition be a true fracture either of the nasal process of the superior maxillary or the zygomatic arch of the malar. In all cases there is more or less displacement of the septum. Dislocations and deformities of the septum may be produced in infants by the nose being pushed into the pillow during sleep, or the breast while being nursed. As regards the treatment of "broken nose," the author states that in most cases apparatus can be dispensed with if, after reduction has been performed, the patient remains quiet and the septum becomes moderately straight. In those cases where after reduction the nasal bones show a tendency to slip inward, he recommends a hard rubber internal splint. In all cases plaster of Paris makes an excellent splint for external application, on account of the perfect manner in which it can be fitted to correct the displacement.

T. H. D. Townsend.

Kronenberg.—*Some Symptoms of the Upper Air-passages in Severe Scarlatina.* "Wien. klin. Rundsch.," No. 24, 1900.

The author describes cases of purulent rhinitis and suppuration of the accessory cavities of the nose and gangrene of the pharynx consequent upon scarlatina.

R. Sachs.

LARYNX.

Bruggisser.—*Paralysis of the Posticus, caused by a Foreign Body in the Larynx.* "Corresp. Bl. f. Schweiz. Aertze," No. 15, 1900.

A man aged twenty-four got a dental plate of indiarubber with two false teeth into the larynx. It was removed eight days later by endolaryngeal extraction. The patient, however, developed a complete paralysis of both crico-arytænoidei postici muscles, probably caused through the pressure, and tracheotomy had to be performed. The author saw the patient again four years afterwards, when the paralysed condition of the muscles remained the same.

R. Sachs.

Thrasher.—*Fibroma of the Larynx.* "New York Medical Journal," October 6, 1900.

This case is interesting as showing how, in what is known as a "non-malignant" growth of the larynx, occasion may arise with comparative suddenness for the employment of rapid measures to avert a fatal termination.

The case reported by the author is that of a woman, aged fifty-six, who came to him with an accompanying diagnosis of cancer of the

larynx. She had for some time suffered from recurrent attacks of hoarseness, from which, however, she had made rapid recoveries. During the previous few weeks the hoarseness had persisted, so that her voice was reduced to a mere whisper. At the same time she became breathless on the slightest exertion, and it was for this now rapidly-increasing dyspnoea that she sought relief. There was no family history of malignant disease, and the patient was well nourished and in excellent health in other respects.

Laryngoscopic examination revealed a growth occupying the posterior and lateral walls of the larynx, deficient abductor movements of the cords, which were pushed into the centre of the larynx, and enlargement of the arytaenoids. Owing to the history of slow growth, the absence of pain, and to the fact of there being present a considerable amount of local inflammation, a benign neoplasm was diagnosed. A portion of the growth was removed with the cutting laryngeal forceps for microscopical examination, and the patient was placed on iodide of potash. The growth was found to present the appearances of a fibroma underneath a normal mucous membrane.

In a week the patient returned with all her symptoms greatly exaggerated. Her face and lips were deeply cyanosed, loud, sonorous râles were heard during respiration, and mucus could be seen bubbling up between the cords. The symptoms were so alarming as to call for immediate operation, and after a preliminary tracheotomy the larynx was laid open from the lower border of the cricoid cartilage through the cricoid and the anterior angle of the arytaenoid to the base of the epiglottis.

A thickening mass was found extending from the lower border of the cricoid to above the vocal cords. The thickening was submucous, and extended down to the cartilaginous framework of the larynx, being most marked in the neighbourhood of the arytaenoids.

The mass of tissue was removed from the sides of the larynx with cutting forceps and curettes, and after the inner surfaces were cauterized with a saturated solution of trichloroacetic acid the cartilages were brought together with silver-wire sutures. A further microscopical examination of the tissue removed showed only the presence of connective-tissue hypertrophy. The tube was removed in a month, and the patient has remained since in perfect health. Her colour is good, and there has been no indication of a recurrence of the neoplasm or of a further contraction of the laryngeal passage.

Sandford.

E A R.

Francis, Alex. (Brisbane).—*Notes on a Case of Emphysematous Otitis, due to the Bacillus Aerogenes Capsulatus.* "The Australian Medical Gazette," October 20, 1900.

The patient, a woman, was quite suddenly seized with acute pain in the left ear, which rapidly increased in severity. On paracentesis being performed, a quantity of clear fluid bubbled out and the pain was relieved. About fifteen hours afterwards pain began in the right ear, and on examination a large bulla was seen on the posterior wall of the external auditory meatus, the drum apparently being healthy. On the bulla being punctured, a quantity of clear fluid and gas bubbled

out, the auditory canal being filled with gas bubbles, and the pain was relieved. Twelve hours afterwards, however, it returned in the right middle ear with great severity. Treatment with peroxide of hydrogen proved satisfactory, and, although there was considerable loss of tissue, the membrana tympani healed completely and the hearing became almost normal. The author appends a bacteriological examination of some cover-glass specimens of the fluid, showing that the *Bacillus aerogenes capsulatus* was present in considerable numbers.

StGeorge Reid.

Gibson, Lockhart J. (Brisbane).—*Useful Hearing obtained in a Deaf-mute aged Nineteen Years.* "The Australian Medical Gazette," October 20, 1900.

Notes are given of a case illustrating the importance of removing hypertrophied lymphoid tissue in the naso-pharynx, and the consequent improvement in hearing even after years of almost total deafness. The patient when operated on was nineteen years of age. She had been deaf since an attack of measles when she was eighteen months old. For six years she had been an inmate of a deaf and dumb institution. A considerable amount of hypertrophied tissue was removed from the naso-pharynx, with the result that in a month a very great improvement was manifested in her hearing. She could easily distinguish sounds, and to a certain extent carry on a conversation. After the operation the ears were regularly politzerized.

StGeorge Reid.

W. K. Hatch and R. Row.—*Fungus Disease of the Ear.* "Lancet," December 1, 1900.

In order to show the frequency with which fungus disease of the ear is met with in Bombay during the rainy season, our author (W. K. H.) collected all the cases treated at the Jamsetjee Jeejeebhoy Hospital during the month of October, 1899. He verified diagnosis by microscopical examination, and in several instances Dr. Row made a culture on agar agar. Medical practitioners in Bombay often speak of the liability to disease of the external ear in this climate, and they generally diagnose the conditions as furunculosis. In most cases the disease is really aspergillosis, and the small pustules seen in the canal are merely the result of a growth of a fungus. Von Roosa in his able work has tabulated several varieties, and he states that, in his opinion, the fungus is the cause of the eczematous condition of the canal and not secondary to it. It will be seen from the tabulated cases that in only one was there any pre-existing disease of the ear; this patient had a perforation and discharge some months before, which had been treated and stopped by means of nitrate of silver. The ear remained well until the appearance of a fungus; there was therefore no discharge seen before the symptoms were experienced. Formerly there had been several recurrences of discharge with inflammatory symptoms from the affected ear, and on none of these occasions was any fungus found, so that probably the fungus in all the cases was really primary. There appears to be a considerable difference in the symptoms due to fungus, varying from slight to considerable deafness, and attended by pain, which is occasionally severe. There is also a good deal of discomfort, generally described by native patients as "heaviness" and sometimes also "stiffness," but this symptom varies according as to whether the

canal is blocked up by epithelium and fungus, or whether the growth is merely a coating to the canal of slight thickness. In most cases the membrana tympani is obscured from view by the growth, or red patches may be seen on it here and there. Roughly speaking, cases may be divided clinically into dry and moist; in the latter class, the symptoms of eczema are present to a greater or less extent, and there is therefore a watery or slightly purulent discharge from the ear, and slight pain and deafness with a feeling of heaviness are usually complained of. In the majority of cases the *aspergillus niger* is found. There is a quantity of moist-looking epithelium on which black particles are plainly visible, having an appearance of grains of gunpowder. If the particles are plentiful, there is more black than white visible; but if there are only a few, it may not be easy to distinguish them readily. After syringing and the removal of the mass, the walls of the canal are seen to be red, and denuded of epithelium and often irregular, with small furuncles and swellings, and the membrana tympani may be bright red in colour or dull and sodden in appearance. Often the *aspergillus flavus* can be seen growing on the surface of small superficial pustules, and if in any quantity the small balls of sporangia are plainly visible. The growth of *penicillium glaucum* gives a fluffy appearance to the surface.

In the "dry" variety the symptoms of pain, uneasiness, and deafness are also complained of, but there is no discharge, and the canal on examination may be found either to be stuffed full of epithelial debris with yellow, black, or brownish-looking particles sprinkled on the surface, or the walls of the canal are coated with a crust, usually of a darkish colour, on which the fungus is seen growing. The appearance is not unlike that of rhinitis when dry crusts coat the surface of the mucous membrane; the tympanum is therefore visible, but the surface is generally partially coated with a similar fungus to that on the canal. Sometimes white patches on the tympanum also are met with, and they are difficult to remove. After syringing, the walls of the canal appear red but dry, and the membrana tympani is not so often inflamed as in the moist variety. Diagnosis is readily made after a few observations, and confirmed by microscopical examination; sometimes the amount of spores is largely in excess of the mycelium.

The treatment adopted in both varieties is the same, and it consists in syringing very thoroughly and using iodoform and boric acid in equal parts. The canal may be swabbed out with camphorated salol, but the drugs used are not of themselves so important as frequent cleansing. It is not necessary to say more than this, that cleanliness and dryness are most efficacious.

StClair Thomson.

James Kerr.—*Two Cases Illustrative of Cases of Sinus Pyæmia with Unusual Results.* "Lancet," October 13, 1900.

Increased attention is now being paid to aural diseases. The recorded mortality from otitis has increased from five to twenty-five per 1,000,000 in twenty years, between 70 and 75 per cent. of these deaths occurring in persons under fifteen years of age, so that the suppurative ear disease, so frequently neglected after the exanthemata, is of serious import to life within a few years. Its import arises from extensions beyond the middle ear leading to abscess or pyæmia. Ten years ago these suppurative complications were looked upon as almost fatal; they are of the gravest import still, and one of the most formidable is sinus pyæmia. Two cases recently seen are worth recording; they are

typical in clinical features, but unusual in the result. The treatment followed in both cases was by operative measures, and the use of anti-streptococcic serum.

One case proved fatal, although the sigmoid sinus was opened, the jugular tied, and anti-streptococcic serum used.

Post-mortem examination showed extension of the thrombus, back from the obliterated part of the sinus and up the petrosal sinuses, general discoloration of bone, erosion and purulent lymph about the jugular foramen, several perforations punched out of the vein wall, and communication from the floor of the tympanum through the jugular dome, by which route infection seemed to have spread.

The second was treated in the same way, and recovered.

The mechanism of these cases is usually a chronic suppurative otitis with extension to the mastoid antrum and cells, which discharge freely until suddenly, either from increased thickening of the mucous membrane or from slow thickening of the bone, the antral passage becomes blocked and discharge ceases. The first signal of danger—pain—follows, with violent inflammation from the retained pus, which often in children breaks its way through the ununited squamoso-mastoid fissure, but in others more often finds its way into cerebral, sigmoid, or cerebellar fossæ. The usual route leading to sigmoid sinus pyæmia is perforation from the antrum into the knee of the fossa, but in Case 1 the perforation appears to have followed a very unusual route in perforating the jugular dome. When the local focus becomes diffused and the chest becomes affected, recovery can scarcely be expected, yet this took place in Case 2, and probably was greatly aided by the use of the anti-streptococcic serum. With a rapid pulse and pyæmic temperature early exploration of the sinus should be made, and if it be found to be affected, operative measures for the thorough removal of all septic material should be resorted to.

StClair Thomson.

Richards.—*Unusual Case of Traumatic Rupture of the Membrana Tympani.* "New York Medical Journal," October 6, 1900.

Traumatic rupture of the membrana tympani occurred in a fireman who was struck on the head at short range by the stream from a hose. He was stunned for a time, and after a few hours the ear began to discharge. He came under observation three days later, complaining chiefly of tinnitus. The canal was cleansed, and iodoform inserted. Similar cases have been reported of rupture of the membrane by waves striking the head while bathing and during heavy firing. It is interesting to note that in the latter connection several cases of traumatic rupture of the membrana tympani occurred amongst sailors working the turret guns during the bombardment of Santiago. In all the instances recorded the symptom most complained of was tinnitus, the loss of hearing being usually not extreme and only temporary.

Sandford.

Stillson, Hamilton.—*Some Experiments on the Relation between Audition and the Circulation of the Blood in the Head.* "Jour. Amer. Med. Assoc.," November 10, 1900.

The paper is based on the experience of the writer when he had tinnitus and slight defect in hearing as the result of a tubal catarrh. Politzer states that often, in tinnitus caused by tubal catarrh, brushing the cuticle in the region supplied by the trigeminal will cause the

tinnitus to disappear, but the writer found that it caused it to increase. Fixing attention on the tinnitus would increase its intensity, and brushing the hairs at the external orifice of the auditory meatus would cause a different tinnitus, found to be caused by the contraction of the muscles in that vicinity. Pressure on the mastoid increased the tinnitus, and also raised its pitch. A fact not mentioned by writers is that pressure on the mastoid lessened the hearing power, especially for high-pitched sounds. When lying down, the tinnitus was increased and the hearing distance lessened in his own case; while in a patient who had sclerosis of the middle ear the hearing was much increased.

Oscar Dodd.

PHARYNX.

Pierce, Norval H.—*Hypertrophy of Pharyngeal Tonsil: its Anatomy and Physiology.* "Jour. Amer. Med. Assoc.," November 3, 1900.

Its ultimate nature is unknown at the present time, whether it is an evolutionary vestige or a gland which has still a function. Embryologically, it develops with the pituitary body and pineal gland, and probably there is a relationship existing between these three bodies. It is composed of lymphoid tissue, similar to the solitary follicles of the intestines, and, together with bloodvessels and nerves, is enclosed in a bag of connective tissue. Early in life this connective tissue is embryonal in character, and matures later; then, following the law of connective tissue, it contracts, thereby squeezing the lymph nodes, shutting off the blood-supply, and inducing atrophy and shrinkage. Adenoids are this normal tissue hypertrophied.

The author describes a specimen, showing the peculiar fan-shaped distribution of the bloodvessels, which are surrounded by connective tissue. This apparently holds the bloodvessels open, thus increasing the blood-supply to the gland, which may account for the hypertrophy in some of these bodies. Hypertrophy is most frequently caused, however, by a succession of attacks of acute inflammation, the acute infectious diseases, acute inflammation of the gland itself, and inflammation due to streptococcus infection. Its relation to tuberculosis is important. There can be no doubt that some of these glands become tuberculous.

Oscar Dodd.

REVIEWS.

Beiträge zur Frage der Volksheilstätten. (Contributions to the Question of Popular Sanatoria.) By Dr. H. WEICKER. A. Hirschwald, Berlin. 1901. 8vo. Pp. 70.

From the material at his disposal the author has succeeded in making an important addition to the literature of the subject. The year 1899 was the sixth since "Krankenheim," a people's sanatorium for pulmonary tuberculosis, came into existence at Goerbersdorf, under the leadership of Dr. Hans Weicker. The sanatorium has been gradually

enlarged, and consists at present of two collections of houses—one group for the male patients, the other for the female. The relatively deficient education of the majority of patients in a sanatorium for the poorer classes must give rise to a great many difficulties, and Dr. Weicker is to be congratulated on his arrangements for the efficient medical supervision of a large number of poor patients scattered about in different buildings, and for providing them with mental occupation, as well as with suitable food, etc. Up to the end of 1899 the total number of patients treated was 2,248, and the total days of treatment of all the patients together reached 164,750—that is, on the average, over 73 days for each patient. Of the 881 patients treated in the year 1899, 744 were sent by assurance associations, and 137 came with private means. Of the assurance cases 86·7 per cent. were improved by the treatment, and 78·8 per cent. were able to return to work, whilst of the private cases 69·3 per cent. were improved and 40 per cent. could resume work. The duration of the good results of treatment is likewise carefully considered. Thus, of the 200 patients treated in the year 1896, 89 per cent. could resume work; but in 1898 only 56·5 per cent. were ascertained to be still at work, in 1899 only 45·7 per cent., and in 1900 only 40·8 per cent. Still, Dr. Weicker shows that the statistics in regard to ultimate results are, on the whole, satisfactory, particularly if sufficient care be taken to admit only suitable cases. The preliminary medical reports must be carefully and conscientiously filled in, and it is only reasonable that the medical men who have the trouble of filling in elaborate reports should be paid, and that the insurance companies should employ their own doctors for selecting suitable cases. The extra expense occasioned in this way would probably in the end be cheaper to the companies than gratuitous reports would be, because by more careful selection less of the sanatorium resources would be wasted on unsuitable cases. Dr. Weicker considers that if suitable cases only be admitted, twelve or thirteen weeks of treatment can, in general, be regarded as sufficient. It is especially for the more advanced cases, which have been recommended with less discrimination, that a longer course of treatment becomes urgent.

The British Sanatoria Annual. Second year of publication. London: John Bale, Sons and Danielsson. 1901. 8vo. Pp. 122.

Nothing could better illustrate the progress of the sanatorium movement for the treatment of pulmonary tuberculosis than the present edition of this little work. The size of the book is more than double that of the first edition, which appeared little over a year ago. There are fifteen fresh entries, and some of the descriptions of the original sanatoria have been amplified and illustrated with fresh views. The publication, as the change of title indicates, is to appear every year, and it will certainly be welcomed by all medical men who wish to send consumptive patients to home sanatoria or who take any general interest in the open-air treatment in the British Islands. The price is only 2s. 9d., post free.

THE
JOURNAL OF LARYNGOLOGY,
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NOTES ON RECENT PAPERS ON THE TREATMENT OF
DIPHTHERIA.

BY R. M. FENN, M.B., C.M.,

Assistant Physician to the Hospital for Consumption and Diseases of the Throat, Manchester.

Bacteriology.—Modifications of Neisser's stain for the diphtheria bacillus have been suggested and recommended by Neisser¹ himself, Hewlett,¹ and Coles and Tanner.²

Eyre³ has succeeded in finding in milk supplied to a school, at a time when a number of cases of diphtheria had occurred among the inmates, the short pathogenic or sheath variety, as well as the Klebs-Loeffler bacillus. In the throats of pigeons, whether diseased or healthy, Macfadyen and Hewlett⁴ have found bacilli resembling Klebs-Loeffler bacilli in their morphological, cultural, and staining peculiarities—in everything, in fact, except their pathogenic or toxic properties.

Richardière and Tollemier⁵ found that virulent diphtheria bacilli were present in the dust floating in the air of a hospital-ward used for diphtheria patients, which had not been disinfected for several weeks. They were, however, absent after disinfection. Frequent disinfection of such apartments seems necessary, as well as the daily removal of dust without stirring it up.

Trevelyan⁶ records two cases of stomatitis with membrane and without general symptoms, from which diphtheria bacilli were obtained. A handkerchief used by one of them was found to con-

tain diphtheria bacilli seven weeks later. In two out of four cases of suspected diphtheritic stomatitis he found the bacilli. In the other two a staphylococcus, and a streptococcus with the staphylococcus, respectively were alone found.

Diphtheria bacilli⁷ continue to be found in the throats of persons who appear to be in good health. Goadby and Berry⁷ find that isolation of such cases leads to diminution in the incidence of diphtheria and other sore throats in large schools. Yonge⁸ recommends the isolation of cases of membranous rhinitis at least until the result of a bacteriological examination is known. This is the more necessary as it appears that membranous rhinitis associated with the Klebs-Loeffler bacillus is considerably more common than the simple form.

The value of antitoxin continues to be the great question of the day in relation to diphtheria. It may be said at the outset that the new evidence and expression of opinion in the medical press go to prove that antitoxin now occupies a position in therapeutics which cannot be shaken by adverse criticism. The new evidence is chiefly statistical, but it is supported fully by the results of clinical observation. To the results in hospital practice have been added those of general practice.^{9 10} Thus, Armstrong,¹⁰ selecting fifty-five cases for antitoxin treatment because of their severity, lost only one of them; whereas of twenty-five cases at first apparently mild, and therefore not treated with antitoxin, two died. The death-rate from diphtheria in Queensland¹¹ in five antitoxin years has fallen to little more than one-third of previous records. In New South Wales it has been reduced to less than one-half, and in Victoria to at least one-half. In Chicago,¹² of 4,071 cases treated with antitoxin in nearly three and a half years, only 6.77 per cent. died. The statistics of the Children's Hospital at Brisbane¹³ show a reduction of mortality from 42.2 per cent. to 12.6 per cent. Goodall¹⁴ shows how remarkably the mortality has been reduced in cases of diphtheria occurring during convalescence from scarlet fever. These cases in the Metropolitan Asylums Board Hospitals always suffered a high mortality (rarely below 50 per cent.). This figure in 1896 and 1897 was reduced, under antitoxin treatment, to 5 and 4.1 per cent. respectively. A case¹⁵ with the appearances of diphtheria, without Loeffler bacilli, however, and in their place an abundance of a variety of leptothrix, was not benefited by antitoxin, though recovery took place.

The most forcible objection^{13 16 17} urged against statistics is that they now include many cases only bacteriologically recognised as diphtheria, and which on account of their mildness yield good results.

This objection cannot hold with regard to *laryngeal cases*, in the diagnosis of which class there has been no great advance, as compared with pre-antitoxin times. Stress has therefore been laid^{13 16} on the results in these cases. Experience shows that there is less need for tracheotomy if serum treatment is begun early.¹⁸ "Operative interference¹³ is still necessary in more than one-half of hospital cases. In private practice it should be much less frequently required. But even in hospital cases the mortality has been reduced from two-thirds to about one-fourth of the cases operated on." After giving a series of statistics on laryngeal cases Goodall sums up thus:¹⁶ "Whereas, in the pre-antitoxin days, of one hundred tracheotomies you could not expect to save more than twenty-nine, now you can expect to save no fewer than fifty-three; of laryngeal cases not operated upon, in those days not more than forty-eight, now not fewer than seventy-five; of all cases (operated on or not), then not more than thirty-four, now not fewer than forty-nine. Further, we have a good chance of saving nowadays a much larger percentage than the numbers just given." Sixty per cent. of Bokai's cases¹⁹ were extubated within forty-eight hours of intubation, with the use of antitoxin. The death-rate from extension to the bronchi,¹⁶ and also from broncho-pneumonia, is much diminished. Tonkin¹⁸ says that in his series of two hundred cases, extension to the larynx was not noted after the injection of antitoxin.

There has been a tendency to increase *the dose of antitoxin*. A very common dose is 1,500 units,^{9 10} though in mild and early cases 600 to 1,000 units are sufficient.¹³ Turner¹³ latterly has given up to 6,000, 8,000, or even 12,000 units for a dose. He contrasts the results obtained at first, when a small quantity of serum with low antitoxin strength was used, with later results, and shows that a considerable reduction in the percentage of fatal cases accompanied the increase of dose. The report of the Metropolitan Asylums Board²⁰ shows that "with the strongest serum 8,000 units can easily be given at one injection. With such a serum the rule must be to give in serious cases 8,000 to 12,000 units every twelve hours for twenty-four or forty-eight hours." Biernacki²¹ records a case where two doses, each of 18,000 units, were given within fourteen hours. "Antitoxin should be given for effect, and most assuredly not for specified doses."²⁰

When should Antitoxin be Administered?—The universal testimony and earnest plea are in favour of early administration,^{13 14 22} before waiting for the results of bacteriological examination.^{23 24} The advocacy of early administration finds a substantial basis in

statistics. The study of 4,071 cases treated in Chicago¹² shows that the mortality per cent. markedly increases with each day's delay in the commencement of antitoxin treatment; the gradations of mortality passing from 0.28 to 11.39 and 25.37 per cent. of cases treated on the first and fourth days, and after the fourth day respectively. Other statistics by Goodall¹⁴ and Turner¹³ teach the same lesson, viz., that antitoxin should be administered as early as possible. In his study of 200 consecutive cases treated with serum, Tonkin¹⁸ finds a mortality of 3 per cent. only in those treated in the first three days, and 12 per cent. for all other cases.¹³ Antitoxin may be of value though administered late in the disease.⁹

It is clear from the reports of the Metropolitan Asylum Board¹⁴ that the percentage incidence of *post-diphtheritic paralysis* has increased since the introduction of antitoxin. This is explained by the survival of serious cases which in the pre-antitoxin days would not have lived long enough to be affected with paralysis. Should paralysis occur after early injection, it will probably be mild²⁵ and of comparatively short duration. The type of paralysis has become, on the whole, less severe, or at all events less fatal. Goodall¹⁴ quotes some significant figures collected by Woollacot at the Eastern Hospital. These figures show that though 18.3 per cent. in 1,580 cases treated with antitoxin suffered from paralysis, only 5.7 per cent. so treated on the first day, and 10.1 per cent. on the second day, became paralysed; "and, further than this, the important fact is brought out that only one case of severe paralysis occurred among those treated on the first two days with no death from paralysis, and only nine such cases with three deaths occurred among those treated in the first three days; whereas fifty-one severe cases and three deaths from paralysis occurred among those who were not brought under treatment till the fourth day or later." Statistics of the same hospital in pre-antitoxin days show that the date on which the patient was admitted to the hospital had no influence on the occurrence of paralysis. "The consideration of paralysis cases alone shows the importance of beginning serum treatment early." "There is some evidence that large doses, i.e., not less than 4,000 units of antitoxin, are more effective than small ones, both in preventing paralysis and in reducing the mortality due to it."²⁵

Antitoxin reduces the likelihood of the occurrence of *nephritis*.¹⁴ "When treatment is begun early albuminuria may not appear, will probably not be severe, and will soon disappear."

The necessity of other general and of local treatment has received consideration. Applications to the throat, according to

Trevelyan,²⁷ are not desirable except in so-called septic diphtheria, as the disadvantages attending anything like a thorough local treatment altogether outweigh its advantages with the use of such a powerful general remedy as antitoxin. At the Brisbane Children's Hospital¹³ routine applications to the throat have been altogether abandoned. Internal medication has also been abandoned as a routine measure.

A paper by Bolton²⁶ contains the results of a careful study of the *complications of the serum treatment of diphtheria*. "Bronchopneumonia, nephritis and other inflammations, and also sudden death following the injection of antitoxin have been recorded, but nothing of this kind has occurred in the London hospitals, where several thousand injections are given annually." The complications he deals with are the following: "Rashes, pains in and around joints, fever, transient albuminuria, abscess, bruising and sloughing at the seat of injection, and certain constitutional disturbances." The blood-serum is responsible for the rashes, pains and fever, as these occur whether the horse from which the serum is taken be immunized or not. The rash may appear from the second to the eighteenth day after injection; it is urticarial, erythematous, or a combination (mixed or successive) of these two forms. The dose does not affect the severity or time of appearance of the rash.

The pains may simulate those of rheumatic fever, but are not relieved by sodium salicylate. In other cases there is simply a little aching. The rash usually appears first, and the pain may occur at any time during the course of the rash or, exceptionally, after it has disappeared. The rise of temperature occurs most frequently with rash and pain, next with rash alone, and rarely with pain alone. Bolton believes that the incidence of albuminuria is increased by antitoxin, but the condition is transient and slight. He concludes "that the complications of antitoxin are at times very painful and inconvenient, but quite harmless." He records one exceptional case of sloughing at the seat of injection, in the case of a child in an exceedingly bad condition due to scarlet fever and diphtheria combined.

Trevelyan²⁷ believes that, considering the severe accidents which have very rarely attended this form of treatment, every case should not be forthwith injected, but if the general symptoms are obvious, or the local lesion severe or extending, no time should be lost in administering antitoxin. Others²⁸ do not agree with this restriction in the use of so reliable a remedy.

The causes of failure of antitoxin treatment as given by Trevelyan²⁷ are: (1) Its too late administration; (2) insufficient

dosage, including inefficiency of the serum; and (3) the presence of mixed infection.

In conclusion, it would seem as though the controversy with regard to the utility of antitoxin as a remedy for diphtheria is well-nigh closed,^{13 14 16} and that secondary questions with regard to its administration and effects will be the chief subjects of future debate. This being the case, it would seem that those practitioners who neglect or refuse to use this remedy in suitable cases are in so doing assuming a most grave responsibility.¹⁰ Further, we can now with confidence thank the many toilers in serum therapeutics, and, above all, the First Source of all good, for so potent and reliable a remedy, which goes far to rob this dread disease of its terrors.

Other Remedies.—Roulin²⁹ recommends a solution of sodium phenate as a local application or gargle for the throat. A solution of trichloride of iodine³⁰ as a gargle, together with insufflations of sodium sozoiodolate and sulphur, and the internal administration of ethereal tincture of ferric chloride, has been recommended as a highly effective treatment. Osness³¹ gives monosulphide of calcium, $\frac{3}{4}$ grain, every half-hour for a period of thirty-six hours; water being taken freely to help elimination of the toxin.

¹ Hewlett, *Laryngology*, September, 1898. ² *British Medical Journal*, May 20, 1899. ³ *Ibid.*, September 2, 1899. ⁴ *Ibid.*, November 11, 1899. ⁵ *American Journal of Medical Science*, October, 1899. ⁶ *British Medical Journal*, April 14, 1900. ⁷ Goadby, *Ibid.*, January 27, 1900. ⁸ *The Practitioner*, December, 1899. ⁹ Daldy, *British Medical Journal*, February 11, 1899. ¹⁰ *Lancet*, March 4, 1899. ¹¹ *Treatment*, April, 1900. ¹² *British Medical Journal*, December 9, 1899. ¹³ Turner, *Ibid.*, December 13, 1899. ¹⁴ *Ibid.*, February 4, 1899. ¹⁵ Meunier and Bertheraud, *Journal of Laryngology, Rhinology and Otology* (Abstract), February, 1899. ¹⁶ Goodall, *British Medical Journal*, January 28, 1899. ¹⁷ Kassowitz, *Journal of Laryngology, Rhinology and Otology* (Abstract), February, 1899. ¹⁸ Tonkin, *Ibid.*, December, 1899. ¹⁹ *Therapeutic Gazette*, September 15, 1899. ²⁰ Mullen, *Ibid.*, April 15, 1900. ²¹ *British Medical Journal*, January 27, 1900. ²² *Treatment*, June 22, 1899. ²³ Pearson, *British Medical Journal*, January 28, 1899. ²⁴ Day, *Dublin Journal of Medical Science*, August 1, 1899. ²⁵ Woolacott, *Journal of Laryngology, Rhinology and Otology* (Abstract), February, 1900. ²⁶ *Lancet*, April 1, 1899. ²⁷ *British Medical Journal*, January 28, 1899. ²⁸ *Therapeutic Gazette*, April 15, 1900. ²⁹ *American Journal of Medical Science*, February, 1900. ³⁰ *Scalpel*, May, 1899. ³¹ *Laryngoscope* (Abstract), March, 1899.

NOTES ON CASES.

By R. LAKE.

A SEROUS CYST OF THE AURICLE.

SEROUS cysts of the auricle are of sufficient rarity to warrant the following brief notice of one that occurred in my hospital practice. The patient, an intelligent man of about thirty-five, came to my out-patients' department with a tumour of the left ear in the region of the fossa of the antihelix, about $1\frac{1}{4}$ by $\frac{3}{4}$ of an inch in diameter.

The history was that four weeks previously there had been noted a small freely movable tumour about the size of a split-pea in the region where the tumour now was; it grew larger gradually at first, but latterly more rapidly. The skin could not be pinched off the cyst wall; it was slightly dusky in hue, not very tense, perfectly translucent, and not very definite at its edges.

A hypodermic needle inserted into the tumour let out a yellow fluid, quite without suspicion of clot and blood in any form.

HERPES OF THE EPIGLOTTIS.

The following case was sent to me by Dr. Guy Watts, and illustrates the value frequently to be attached to patients' accounts of their ailments: Major X——, an official at the War Office at the time when the authorities suddenly became aware of the task before them in South Africa, was in consequence of the strain induced by long hours, great responsibility, and irregular meals, considerably run down. It happened that the day before any symptoms appeared in the throat, he at one of his meals partook of fresh herring. Late the following night he called in Dr. Watts, and told him that he had swallowed a herring-bone, and that it had stuck in his throat. The most careful examination failed to detect any bone, and early the next morning he came to see if I could find it. I also assumed that his story was correct, and searched in vain for a bone in the usual situations. A laryngeal examination, however, soon put an entirely new aspect on the case; the epiglottis was bright red on its anterior surface, and projecting from this were four small vesicles. A few leading questions settled the matter. The patient had felt the premonitory symptoms, assumed it was a foreign body, recalled the fish, and concluded that the bone had lain *perdu* for a time, and neglected to mention the fact that he had had no reason for being certain that one was there at all.

SOCIETIES' MEETINGS.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

Sixty-first Ordinary Meeting, December 7, 1900.

F. DE HAVILLAND HALL, M.D., *President, in the Chair.*

THE PRESIDENT said that Sir Felix Semon, who was unavoidably absent, was anxious to point out that the treatment of nasal polypus depended on its precise variation, and hoped the result of the discussion would be to draw some distinction between the different forms of nasal polypi, which required different treatment. The title of the subject under discussion suggested only nasal polypi in general, without any reference to the various forms.

He then called upon Dr. Lambert Lack and Mr. Cresswell Baber to open the discussion upon

THE TREATMENT OF NASAL POLYPUS.

DR. LAMBERT LACK said:

Mr. President and Gentlemen,—I deeply appreciate the high honour conferred on me by the Council in inviting me to open the discussion on this important subject. Many members will no doubt have interesting remarks to make, and therefore I shall detain you as short a time as possible while I briefly enumerate the results of my own investigations, and leave the discussion to others.

The rational treatment of polypus must depend upon the view we take of its pathology. This subject was fully discussed at the meeting of the British Medical Association in London in 1895, when the general opinion seemed to be that polypi were in some way the products of inflammation, but both Woakes's theory of "necrosing ethmoiditis" and Grünwald's of sinus suppuration were considered disproved or inadequate, and, in fact, the discussion only showed the truth of Mackenzie's statement that the cause of polypus was still unknown.

The theory I wish to maintain is that the ordinary nasal polypus is essentially a *simple localized patch of oedematous mucous membrane*, and that this oedema is a result of disease in the underlying bone.

The first point is proved by both clinical and microscopical

examinations. Histologically, polypi consist of loose fibrous tissue, the meshes of which are filled by serous fluid. The growth contains vessels and glands, and is covered by the normal epithelium of the part. The glands are more numerous near the attachment of the growth, and vary in number in different polypi, sometimes—particularly in chronic cases—being very numerous. In addition to this, there are signs of inflammation, the vessel walls are enlarged and thickened, and there are scattered collections of round cells, especially marked around the vessels and glands. The glands are sometimes healthy, sometimes undergoing degeneration. The acini may be dilated from obstruction of the ducts due to pressure of the inflammatory exudation, and the cysts commonly seen in polypi are thus derived. Thus it is seen that polypi contain all the structures of the normal mucous membrane *plus* a certain amount of inflammatory exudation, serum, and round cells; and, further, a polypus passes gradually and imperceptibly at its edge into the normal mucous membrane.

It is obvious that growths containing such diverse and highly differentiated structures are neither tumours nor granulations. The latter in the nose, as elsewhere, consist of round cells, spindle cells, young vessels, and the early stages of fibrous tissue. Moreover, as seen after intranasal operations, or when produced by the irritation of a foreign body, a sequestrum, etc., they are quite different from polypi. Again, clinically, there is every stage between œdema of the mucous membrane and a polypus—a slight œdema, a marked localized œdema, a broadly sessile polypus, and a typical pedunculated polypus. It is purely a question of degree, a small, diffuse, non-movable mass being usually described as œdema, whilst a larger, more sharply defined, more movable growth is considered a polypus. Also the microscopic structure of the two is identical. Grünwald asserted that by tightly packing an antrum œdema of the lower lip of the ostium maxillare could be produced, and that this œdematous tissue had the microscopical characters of a polypus.

The second point, that polypi are due to disease of the underlying bone, was first, I believe, definitely asserted by Woakes; but his views have obtained very little credence. However much exception may be taken to Woakes's own work and investigations, it seems to me his theory of bone disease is the most adequate explanation hitherto offered of polypi, and especially of their tendency to recur, and, further, that the independent evidence of Thurston and Martin, based upon microscopic examination, ought not to be lightly overlooked.

More than two years ago, when I took up this work, I collected pieces of bone from over thirty cases of nasal polypi, and prepared them for microscopical examination. In every case bone changes were found of the nature of a rarefying osteitis. Briefly, the sections showed that the process commences as a proliferation of the cells in the deeper layer of the periosteum. In places numerous large cells or osteoclasts appear in contact with the bone, and gradually eat it away, forming irregular little bays along its edge. At the same time, the bone cells themselves enlarge and become more numerous, and give the bone a more cellular appearance. As this process of rarefying osteitis extends, the bone ultimately becomes disintegrated, and the fragments, surrounded on all sides by osteoclasts, are slowly eaten away and absorbed. No true necrosis was seen. The appearances were found in both extensive and simple cases of polypi. Thus, the pathological evidence supporting that of Thurston and Marston is fairly complete, in spite of some few contrary observations of Zuckerkandl, Luc, etc.

Since this paper was written, these observations have been confirmed by Cordes (*Archiv. für Rhin. und Laryng.* of last month), who has described some investigations with almost identical results, except that he did not always find bone changes in mild cases of polypi.

The following are some of the clinical signs of bone disease:

1. Digital examination under general anæsthesia: If the finger be passed carefully up into the ethmoidal region in cases in which no operation has ever been performed, it often impinges on soft, jelly-like tissue, in which spicules and loose pieces of bone can be plainly felt, although it is very rare to feel rough bare bone.

2. The probe may be used in a similar way, but it is obviously much less reliable. Very great care must be taken in employing it, and in drawing deductions from its use. A blunt-ended probe, and one which can be easily bent to pass in any direction, must be used, and even then it is difficult to avoid perforating the softened mucous membrane. The ease, however, with which this is done, and the feeling of bare bone obtained, is quite different from the normal condition.

3. In a severe case of polypus in which no operative interference has ever been attempted, if the polypi be carefully removed with the snare without touching the bone in any way, it is sometimes possible to observe that the entire middle turbinate has disappeared, and its place has been filled up by masses of small polypoid-looking growths.

4. The results of operations as regards recurrence when the

diseased bone is completely removed. This further proves that the bone disease is the cause of the polypi, and not *vice versâ*, as some have stated.

The probable history of a case of polypus is as follows :

In an acute inflammation of the ethmoidal region, and especially in the severer and more lasting forms of it occurring in connection with the exanthemata, erysipelas, influenza, and septic affections, such as sinus suppurations, it is probable that the periosteum, covered only by the thin mucous membrane, and even the bone, may be involved. In such cases the middle turbinate is especially liable to be affected, and on examination this structure appears large and rounded, and covered by a thickened œdematous mucous membrane. Microscopical examination of such a middle turbinate shows the early stage of the rarefying osteitis above described, and the overlying œdematous mucous membrane has all the microscopical characters of a typical nasal polypus.

As the disease slowly progresses, the bone becomes disintegrated and at the same time expanded, and the cell commonly present in its anterior end may become distended and form a bony cyst.

The osteitis spreads to the neighbouring parts until the whole ethmoid may become affected. The outlines of the bone are lost, the middle turbinate can be no longer recognised, but loose pieces of bone, polypi, œdematous granulations, and gelatinous mucous membrane fill the whole upper part of the nose. In this extremely slow but progressive process, the bone is slowly but surely eroded and absorbed. In some cases the disease is ultimately arrested, and then the bone becomes very dense and sclerosed. Such a condition is found in cases in which only a single polypus, or perhaps two polypi, are present, and in these cases, as is well known, recurrence of the growth after removal is rare.

As just said, the œdematous mucous membrane overlying the affected bone in the early stage is indistinguishable microscopically from a polypus, and clinically the two conditions pass from one to the other by imperceptible stages, and can only be artificially divided. Moreover, œdematous infiltration in these parts is apt to become large and bulging, as the mucous membrane is extremely loosely attached and easily thrown into folds. After a time these swellings, well supplied with nourishment, apparently take on a more or less independent growth; the increase in size is doubtless assisted by the dependent position of the growths and the action of gravity. Their tendency to become pedunculated is also partly due to the action of gravity, and partly, perhaps, to the effect of blowing the nose, which would

tend to make the growth swing about. These considerations explain the chief facts in the clinical features of polypi, their liability to recur after simple removal, the fact that they grow only from the ethmoidal region of the nose, where the bone is covered by a thin muco-periosteum, and that they are more common on the middle turbinate and about the regions of the ostia of the accessory sinuses, where the mucous membrane is excessively lax.

Treatment.—If this theory of the pathology of nasal polypus is accepted, the whole question of treatment must be reconsidered, for it follows that our efforts must be directed towards the eradication of the bone disease, and not simply towards the removal of the polypi, one of its effects.

For the sake of convenience, the following four groups of cases may be taken :

1. Cases in which one or two polypi only are present, which are of long standing, in which there is no sign of active disease still present, and in which it is probable that the initial bone disease has completely passed off. In such cases simple removal with the snare may be practised. It is a matter of everyday experience that recurrence in such cases is rare.

2. Simple cases of early bone disease, in which there is enlargement of the anterior end of the middle turbinate, with overlying œdema of the mucous membrane, or the early stage of polypus formation. The affected part should be removed, and this generally resolves itself into a typical amputation of the anterior end or more of the middle turbinate.

3. Cases in which a few polypi only are present, and in which there is apparently a very limited area of bone disease. These cases may also be treated with the snare, but an attempt should always be made to hitch the wire loop as high as possible round the base of the growth, so as to encircle the piece of bone from which it grows. After the polypi and as much bone as possible have been removed in this way, at a subsequent sitting the affected region should be thoroughly examined by probing and illumination, and all diseased bone and mucous membrane should be clipped away by Grünwald's forceps. The middle turbinate should be removed if diseased, or if necessary to give access to the affected region. In other cases it may be necessary to scrape away the affected part, and in such circumstances nitrous oxide anæsthesia should be employed, and the operation performed with a ring-knife under good illumination.

The result of operation in these three groups of cases is almost

invariably good, and the operation itself apparently is in no way a serious one.

4. In the cases of extensive bone disease in which there are many polypi involving an extensive part of the ethmoid, a more radical procedure is necessary. In such cases simple removal of polypi is useless, as recurrence rapidly takes place, and I believe it is better, in the first place, to give a general anæsthetic, and to remove, not only the polypi, but the whole of the affected part of the ethmoid bone.

This operation should also be practised in cases in which recurrence has followed other operations for the removal of polypi, and cases associated with suppuration in the ethmoidal cells or in other accessory sinuses. In the former case it is necessary to open the ethmoidal cells for the suppuration itself, and in the latter it is especially necessary to clear the approach to the ostium of the affected sinus.

The operation is performed as follows: The patient being anæsthetized, the ethmoidal region is thoroughly examined by the finger, both through the nose and also through the post-nasal space, to determine as far as possible the extent of the disease. If the middle turbinate be present, it may be removed by means of the spokeshave, and any large polypi should be removed by means of the forceps. Then the lateral mass of the ethmoid should be thoroughly scraped away by means of a large ring-knife, such as Meyer's original adenoid curette. This is the only effective instrument; sharp spoons are quite useless. In this way large masses of polypi, degenerated mucous membrane, and fragments of bone, are removed. The finger is introduced from time to time to observe the progress, to feel for any spicules of bone and soft patches, and the scraping is continued until all friable tissue has been removed. Healthy parts of the ethmoid are easily distinguished by the finger, and even by the curette, as they are smooth, firm, resistant, and give little hold to the knife. In some cases the operation is completed by a smaller ring-knife, but this must be employed with the greatest care. Of course, great caution must be used when it is felt that the region of the cribriform plate is being reached, but the whole inner wall of the orbit may be scraped away with impunity.

The operation should be performed with the patient turned well over on to his side, and in cases where the posterior part of the ethmoid is unaffected a large sponge may be pushed up into the post-nasal space. Directly the operation is over, hæmorrhage is arrested by packing the nose with a strip of gauze soaked in

glycerine-iodoform emulsion, and a piece of lint soaked in evaporating lotion is then applied to the face. This gauze packing should be changed every second or third day, and the nose irrigated. If it is easily tolerated, it may be continued for a fortnight; in other cases it should be omitted earlier.

Results.—The large majority of cases run an afebrile course. In a few cases numerous granulations appear in the field of operation, and may even become exuberant. If the operation has been thoroughly performed, these usually disappear spontaneously in a few weeks, and meantime the patient experiences no discomfort from their presence. After five to eight weeks a large dry cavity, lined by healthy adherent mucous membrane, will be seen in the upper part of the nose.

One would theoretically expect operation in such a region to be somewhat dangerous, but although I have operated now between fifty and sixty times, and others have also performed it, no symptoms causing real anxiety have yet been seen. Of ill results following the operation, the following have been noted: A black eye is not uncommon, but usually subsides in three to four days, under cold applications. In one or two cases, acute suppurative otitis occurred, but passed off under treatment. Such a result may follow any similar operation. In a few cases a considerable rise of temperature has occurred, but only in cases in which sinus suppuration has been present. Such cases have readily yielded when the packing has been omitted and nasal irrigation adopted.

In one case of extensive ethmoidal caries, with suppuration in the ethmoidal cells, and probably also in the frontal sinus, an orbital abscess accompanied by necrosis of a portion of the inner wall of the orbit followed some three weeks after the operation, and a week or ten days after the patient had left the hospital. This is not a very rare occurrence in cases of ethmoidal cell suppuration, but it may have been due to or hastened by the previous operation. The abscess was opened externally, a sequestrum removed, and a cure followed.

In no cases have any cerebral symptoms been noted, and no death has occurred. Even if the operation entail some danger, there is some, and probably a greater, risk in leaving the disease alone, or in employing the small nibbling operations which are commonly recommended. The risk of operating is probably greater in cases in which suppuration is present, but the necessity for it, and the danger of leaving the disease alone, is also greater. I am more fearful, if the operation is widely adopted, that it should fail

to cure from want of being practised with sufficient thoroughness, than that it should cause fatalities by being performed too boldly.

The results as regards recurrence are very good. In all simple cases of polypi a cure has resulted, and this has been permanent for several years in some cases, in which snare operations had been repeatedly followed by recurrence. Such cases I have already shown here, and I hope at later meetings to show more. In suppurative cases recurrence has been rare, and when it has occurred the disease has not been the intractable affection it was before operation. In such cases occasional removal with the snare will usually give immunity for months, until if the suppuration be cured, the polypi no longer recur. In a few cases I have operated a second time, but in every case in which I have performed the first operation myself the bone has appeared quite firm and dense, and there has been practically nothing to remove.

The only alternative procedure—repeated small operations, such as nibbling away with forceps, so commonly advocated—may perhaps effect a cure in time, but it has many and great disadvantages. The operation is always painful, as cocaine acts by no means satisfactorily in these cases. Ten, twenty, and even more sittings are often required, as very little can be done at a time. This is extremely tedious and discouraging to the patient, and the constant pain and dread of it causes general ill-health. Little or no benefit following the earlier operations, the patient often abandons treatment. In cases associated with suppuration each operation exposes a raw surface, over which pus flows, and there is necessarily a tendency to septic absorption and to the spread of the bone affection. Finally, fatal results have occurred from meningeal infection apparently directly due to operation, and I believe these repeated timid procedures are more dangerous than a single severe but curative measure.

In conclusion, then, I would urge that this operation, carried out with due precaution, should be performed in all cases of nasal polypi in which there is extensive disease of the ethmoid bone, in which recurrence of polypi has repeatedly followed other methods of removal, and in which suppuration is present in the ethmoidal cells or other accessory cavities.

[Dr. Lambert Lack's paper was illustrated by (1) a series of diseased middle turbinate bodies, showing the transition stages between simple œdema and true polypus, and (2) a series of microscopic slides of sections of the bone underlying polypi, showing various degrees of periostitis and osteitis.]

MR. CRESSWELL BABER said: Gentlemen, the subject of the treatment of mucous polypi of the nose is one of perennial interest, because of the exceeding commonness of these growths, and of the difficulty they often present in treatment.

The *treatment* resolves itself into two stages: (1) removal of the growths; (2) after-treatment with the view to preventing their recurrence.

1. *Removal of the Growths.*—It is pretty generally agreed this should be carried out with a snare, hot or cold. I am always in the habit of using the cold snare, and with a rather thick steel wire. I have repeatedly made up my mind to use the galvanic loop, but have always, after a short trial, come back to the cold, chiefly because I find no special advantage from the hot, and considerably more trouble in using it. My own practice is to snare out the growths as carefully as possible at sittings with about a fortnight's interval, even removing small roots in the middle meatus by this method. The adjustment of the snare when a somewhat thick steel wire is used scarcely ever meets with any difficulty, but in the event of such an occurrence the polypi may be drawn forwards with a sharp hook or a fine pair of catch forceps.

In getting the loop round a polypus projecting through the choana, a finger in the naso-pharynx is, of course, invaluable, and if it be impossible to secure a polypus in this position by this method, Lange's blunt hook may be used, or, if necessary, a pair of forceps guided by the finger. The use of forceps for the removal of polypi is not, in the ordinary way, to be recommended.

2. *After-treatment.*—The routine after-treatment hitherto adopted consists in burning the so-called roots of the polypi with the galvanic cautery. This method is only suitable for cases in which the point of origin of the growths is visible, for to plunge a cautery blindly into the interstices of the ethmoid bone seems to me a useless and dangerous proceeding. The same remark applies, perhaps with less effect, to the use of a chemical caustic, such as chromic acid. It has been my habit for some years to use a spray of rectified spirit (as first recommended by Miller), varying from 25 per cent. to full strength, for its shrinking properties on the mucous membrane, and I think with benefit.

A word of caution is necessary, to the effect that in old people (those over seventy) it is advisable either to leave the growths alone, or to operate on a small amount at a time, partly on account of shock, and partly on account of the hæmorrhage, which, though it may be minimized by extract of suprarenal capsule used in addition to cocaine or eucaine, is not a negligible quantity. The question

of shock is more important still in galvanic cautery operations on the middle turbinate body, and should always be considered, especially as these growths are often found in persons with asthma and weak hearts.

We next come to the question whether any further treatment is advisable. This must depend on the diagnosis which we are able to make in each individual case. Mucous polypi, which, according to most recent authors, may be defined as the result of an inflammatory serous infiltration of the mucous membrane of the ethmoid, seem liable, speaking clinically, to be produced by almost any irritation. They may be caused not only by disease confined to the ethmoid, but also by the irritation of the discharge from an empyema of the antrum, or of the frontal or sphenoidal sinuses, and by such different conditions as foreign bodies in the nose and malignant disease.

They are not, as assumed by some observers, necessarily associated with suppuration of an accessory sinus, or even with suppuration at all. These different conditions must therefore be carefully searched for before any further treatment is undertaken.

Having excluded non-ethmoidal causes, the form of the disease in which the morbid changes are confined to the ethmoid remains to be considered. Our knowledge of the pathology of this affection is still imperfect; but it is generally considered by recent observers that the inflammatory trouble giving rise to mucous polypus may be limited to the mucous membrane, or that chronic proliferating periostitis, and osteoplastic or rarefying osteitis (or both), may also be present. Hajek considers that, except in constitutional dyscrasie (tuberculosis and syphilis), these processes result from the extension of the inflammatory infiltration of the mucous membrane and the periosteum into the bone and its medullary spaces. According to the latest published researches, those of Cordes, the bone may be primarily affected from typhus, influenza, scarlet fever, and other exanthemata, or secondarily from the mucous membrane. This author, by the way, does not confirm the presence of rarefying osteitis, although he admits that absorptive changes constantly accompany the osteoplastic processes. When all the polypi have been thoroughly extirpated, and the exposed mucous membrane either burnt or removed, and no recurrence takes place, it is assumed that the mucous membrane only is implicated, and no further treatment is necessary. It is impossible to ascertain the percentage of these cases, because, as a rule, the patients do not return to the surgeon more than once or twice for inspection. It

must also be borne in mind that very long intervals between the recurrences (if not actual absence of the same) occur in cases in which to all appearance the ethmoid bone has undergone distinct hyperplastic changes. A single polypus projecting into the choana often does not recur in my experience, but as a rule it is impossible to foretell the likelihood of recurrence. If frequent and rapid regrowth occur, we may take it for granted that the bone is affected with osteitis, as above mentioned, or at least that the mucous membrane in the cells, which escapes our vision, is participating in the disease. In these cases the only method of preventing recurrence is to remove the affected bone and cells, and this is indicated whether we regard the bone or the mucous membrane as the starting-point of the disease.

In the former case the bone requires removal, as the source of irritation; in the latter because, without removing the bone, the mucous membrane in the cells, which is giving rise to the trouble, is inaccessible. The first step is the removal of the anterior half of the middle turbinated body with forceps or scissors and snare, if it has not been done already for examination or treatment of the frontal or maxillary sinuses. This little operation renders the anterior ethmoidal cells more accessible. If this is insufficient, the ethmoidal cells and walls may be removed with Grünwald's or similar forceps, and curetting them with scoops of various shapes, due regard being had to any possible injury to the cribriform or orbital plates. In my experience, the removal of the middle turbinated body is satisfactory; but the other measures are less so, on account of the hæmorrhage which so rapidly obscures the view, and prevents much being done at one time. Neither of these measures, however, as far as I know, gives a certain guarantee against recurrence. When the discharge from the ethmoidal cells is distinctly purulent, there is more necessity for opening them freely, as suppuration in these cavities is not devoid of danger to the surrounding parts. Of the exact procedure recommended by Dr. Lack—*i.e.*, the removal of all the ethmoidal cells at one sitting with a Meyer's ring-knife—I have no personal experience; I presume that such an operation would only be employed in cases of frequent and rapid recurrence, but even in these cases I think it is only to be recommended under two conditions: (1) if it can be shown that the operation gives immunity from recurrence; (2) if it can be performed without risk of injury to the contents of the cranial or orbital cavities. Whether it has a deleterious effect on any remaining sense of taste or smell perhaps Dr. Lack will be able to tell us. At the same time, it must be admitted that any operation which,

without danger, will prevent recurrence of these growths will be a great boon to sufferers from this disease.

Although for the sake of clearness I have divided the ethmoidal cases from the cases of polypus due to disease in the other sinuses, it must be understood that the two conditions often co-exist, and that the relation between them is not yet clearly established.

On the whole, I think that the chief advance in the treatment of mucous polypi lies in the direction of a more accurate diagnosis of the cause in each case, which is the only guide to rational treatment.

In these few remarks I have omitted all reference to papillomata and other non-malignant growths which are sometimes called polypi, in order to keep the discussion to the important subject of mucous polypi, neither have I made any reference to the treatment of empyema of the larger accessory cavities, or of polypi contained in them.

If the discussion draws forth the opinions of members on the comparative value of the different methods of removing mucous polypi, and of the various forms of after-treatment, especially in regard to the removal of bone from the ethmoid, it will not have missed its object.

Mr. W. G. SPENCER agreed with the treatment set forward by Dr. Lack, but not with his pathology of polypus, which, he thought, remained unknown. The inflammatory theory required a great deal of further evidence for its firm establishment. By the acceptance of the latter, the pathology of the nose was entirely separated from the pathology of other mucous membranes, and of the polypi which occurred in them. No doubt the nose was the favourite locality for the formation of muco-polypoid growths, yet there were varieties of this formation in other mucous membranes, *e.g.*, of the rectum and bladder. In the latter there was fairly strong evidence that they originated in the submucous tissue, whether they began as actual fibromata or were always of a myxomatous nature. It was generally agreed that the shape of polypi was due to the action of gravity, but their occurrence in several places, and sometimes on each side of the nose, in the frontal and ethmoidal cavities and maxillary sinuses, afforded little clinical evidence of a previous primary inflammation of the bone or periosteum. When this was present, the resulting growths were not typical mucous polypi, although, as in the case of other tumours, inflammatory conditions and incomplete removal promoted recurrence. But there must be an essential difference between the vascular granulations, however œdematous, which occurred after, *e.g.*, syphilitic necrosis, injury, or the presence of

a foreign body in the nose, and an ordinary mucous polypus. Again, the mucous polypi were certainly the most frequently occurring, and Dr. Lack had referred to the difficulty in some cases of distinguishing them from inflammatory conditions of the inferior turbinate, which was of course very commonly inflamed, yet not the common site of the polypi. There was no sharp line of distinction between true mucous polypi (nasal or naso-pharyngeal) and those which ultimately turned out to be sarcomata. Even carcinomata in the nose had very often projecting polypoid masses indistinguishable microscopically, or very nearly so, from the simple polypi.

Turning to the question of the bone change, it was an oft-discussed matter, and difficult to prove either way. In the specimens shown by Dr. Lack, which he had not very carefully examined, he saw no reason which would cause him to make up his mind on the subject. The changes in the bones were secondary, but not primary in his opinion. Polypi in other situations had nothing to do with the periosteum or with the bone, yet Dr. Lack would try to show that nasal polypi were the result of perichondrial or periosteal disease. Changes in the bone varied, but a great deal of the permanent bone of the nose was cancellous, and some of the specimens appeared to present this normal cancellous bone. Very little information on this point had been added to the subject of the old controversy between Dr. Woakes and Dr. Sidney Martin. No doubt many of the specimens showed secondary atrophic osteitis occurring in connection with the pedicle of the polypus; the larger the polypus became, the more marked the appearance was. So he thought that very little trustworthy clinical evidence had been adduced to prove that polypi were preceded by inflammatory changes. The true untouched muco-fibromatous polypus had more the appearance of a real benign tumour, single or multiple, as the case might be.*

With regard to treatment, he was in accord with Dr. Lack's method in extensive cases, where it was of great value to commence the treatment by a thorough removal under an anæsthetic. He thought, however, that recurrence might take place in some cases. Its value lay in the reduction of the number of sittings hitherto necessary for the patient when there was extensive change present. It was necessary to remove the pedicle of the tumour, and because

* Gérard Marchant, in "Traité de Chirurgie," Duplay et Reclus, 2me ed., 1898, t. iv., p. 670.

Ziegler, "Lehrbuch d. allg. u. spec. pathol. Anat.," 9te Aufl., 1898, Bd. ii., S. 626; also H. Mackenzie, "A Case of Diffuse Papillomatous Degeneration of the Nasal Mucous Membrane," *Lancet*, 1896, vol. ii., p. 460.

of the convoluted structure of the nose to remove a large amount of bone in order to get at the pedicle. He preferred to insist upon the necessity of removing the whole of the pedicle, viewing it as a tumour, rather than, as Dr. Lack held, of removing bone primarily diseased.

Mr. CHARLES PARKER said: I should like to add what weight I can to the reasonings and conclusions advanced by Dr. Lack. I have, I think, seen every case on which he has operated during the last three years, and have watched their progress afterwards; moreover, I have myself frequently adopted the measures he advocates for the cure of polypi. The microscopic specimens before us to-night clearly prove that accompanying polypi there is a bone disease, presumably of the nature of rarefying osteitis. The fact that simple removal of polypi does not cure the disease points to the conclusion that the origin of the trouble has been left behind; and, on the other hand, the old and recognised fact that, if the bone underlying the attachment of a polypus can be removed with the polypus, recurrence is far less likely to occur, suggests that in this case the cause *has* been removed. Again, it is undoubtedly possible to trace clinically every stage of a polypus, from a mere œdema of the mucous membrane covering the anterior end of the middle turbinated bone, to a definite fully-formed pedunculated polypus, and to prove that there are as definite, though less marked, bone changes when the mucous membrane is only œdematous as when it has degenerated into true polypus; from which it is, I think, fair to argue that the bone trouble precedes the polypus. Therefore, one must conclude that both the microscope and clinical experience favour the view that the bone disease is the cause rather than the result of polypi. This being so, operative measures must have for their object the removal of every portion of diseased bone, and this in a confined cavity like the nose can only be done by some such method as that put before us to-night. In several cases in which I have adopted Dr. Lack's treatment, I have had reason to realize the futility of my previous efforts to cure the case with a snare; for having by this latter means removed all visible definite polypi, and brought the case to that point where on examination one sees only a lot of small polypoid excrescences springing from the ethmoid bone, and situated where the middle turbinated should be, I have proceeded to the more radical operation, and have been astounded by the quantity of large polypi removed by means of the ring-knife—literally handfuls. It was evident that directly the lower, visible polypi had been removed, and thus pressure relieved, others had descended by gravity to take their place, and, judging from the

number afterwards taken away with the ring-knife, there were sufficient polypi to last these patients a lifetime had I continued treatment by means of the snare. As to the operation, I follow the same procedure as Dr. Lack, and do not think his methods can be improved upon. As to the results, I think they are very satisfactory. In all my own cases, and those of Dr. Lack's which I have observed, there has invariably been very great improvement, and in the majority of cases I think the word "cure" is none too strong. Considering the chronicity of these cases, and the frequency with which they are operated upon, I think the patients themselves become good judges of the results, and after this more radical operation they all agree in saying that they have not been so comfortable for years, even if they cannot be classed amongst the cured; and so far I have never seen any really serious ill results. Finally, I think this operation should be employed in all cases where recurrence has occurred more than three or four times, in all cases of multiple polypi accompanied by suppuration, from whatever source, and in those cases where the middle turbinated has disappeared, and its place been taken by mucous membrane in a state of polypoid degeneration. In these latter cases there is sure to be very extensive disease hidden from view.

Dr. DONELAN desired to add his tribute of congratulations to the readers of the two papers. He thought the operation described by Dr. Lack would prove a valuable one in the severer cases, while in others the snare would continue to be used. Notwithstanding the specimens, he felt the theory that the disease originated in the bone was "not proven"; and the fact that one of the authorities quoted by Dr. Lack had admitted that the bone was not affected in the slighter cases led one to believe that the disappearance of the turbinals was due to more familiar causes, such as pressure and impaired blood-supply, rather than to a rarefying osteitis. Instances had been given of mucous polypi in the rectum, and at another point in the antipodes of our interests, where the only "osseous" structure was the os uteri; but he thought examples of mucous polypi unconnected with bone might be found nearer home—as, for instance, on the soft palate—and he had at present a case in which he had removed five or six polypi from the angle between the cartilaginous septum and the ala, and at some distance from the nasal bones. If the rarefying osteitis were admitted to occur as extensively as Dr. Lack claimed, he would like to ask him what prevented the process from extending more widely through the cranium.

Dr. SCANES SPICER had hoped that, in order to promote the

fullest ventilation of the subject, someone would have risen to advocate the opposite side of the case to that put forward by Dr. Lack. He himself could not do so, for he agreed with Dr. Lack practically *in toto*. But, in justice to previous workers on nasal problems, he must point out that operative procedures identical with those described by Dr. Lack had been performed in suitable cases both in England and Germany, at all events, for many years. Ever since an advance copy of Grünwald's work on "Die Lehre von den Naseneiterungen" had been sent to him for review in 1895 he had tentatively used all the methods and instruments described by that author, and amongst them his method of attacking severe cases of polypus and suppuration of ethmoidal labyrinth—surely the same thing as polypus and suppuration of lateral mass of ethmoid. [See cases 149, 151, 155, which can now be read in Lamb's English translation of Grünwald's work.] Further, after a large experience of these methods, he had himself exhibited cases at the Laryngological Society in which these very procedures had been carried out on the ethmoid body for multiple polypoid degeneration combined with ethmoidal suppuration,* *i.e.*, after having formally excised the middle turbinated bones, to curette away with due caution any diseased tissue in the subjacent ethmoidal labyrinth; and he had further supported and advocated the adoption of these measures (*loc. cit.*) in suitable severe cases—which a further experience now enables him to even more strongly recommend. He therefore felt it incumbent on him to make it clear that in consequence of Grünwald's work these methods were known to some nasal workers at least five years ago, and have been tried, and to a large extent adopted—in order to clear English rhinology from the unjust imputation of being so many years behind the times.† Nevertheless he heartily congratulated Dr. Lack on his bold and powerful advocacy of the application of sound surgical principles to these nasal disorders, on his admirable re-statement of the whole problem, and on his painstaking re-investigation of the histological changes. Here Dr. Lack's results appeared to him to agree with those of Grünwald and Woakes, except for the difference with the latter as to the amount and frequency of necrosis. As far as he knew, he believed the credit of first maintaining the causal connection between ethmoid bone disease and polypus belonged to Dr. Woakes. He had the more pleasure in stating this, for he was by no means a supporter of the latter in his use of the term

* "Proc. Laryng. Soc. Lond.," vol. iv., pp. 79-81, 1897.

† Speaker's review of Grünwald's 2nd edit., *Journal of Laryngology*, May, 1896.

"necrosing ethmoiditis." In a few cases the speaker was well aware of real necrosis—large sequestra—in cases quite free of syphilitic taint, and it was the comparative rarity of genuine necrosis that had led him to question the propriety of applying the epithet "necrosing" to a condition of which necrosis was only a late and occasional accident. He feared that Dr. Woakes had delayed that recognition of his work which was justly his due for many years by that unfortunate term—unfortunate in that it was taken to imply that he taught there was some special necrosing pathological process found in the ethmoid and confined to it, which was essentially different to any known to occur elsewhere in the body. The speaker thought that if the changes observed had been originally described in terms of general surgical pathology as "muco-periostitis," "rarefying osteitis," "sclerosing osteitis," "dry caries," etc., and had been recognised as not affecting the ethmoid only, but many of the adjacent bones of the head, the meaning would have been at once grasped, and full recognition accorded. With reference to the performance of the operation in question, the speaker has from the first adopted the methods and instruments of Grünwald, with some modifications. The neck of the middle turbinated is first cut through with Grünwald's forceps; * the cold wire snare is then passed well into the slit made, over the genu, and back over the middle turbinated as far as possible, and then tightened up so as to cut off the anterior half. The posterior half is then removed with the turbinotome when diseased. Polypi, cysts, abscesses, granulations, cholesteatomatous debris, soft bone, and necrotic pieces, are then cautiously but thoroughly curetted and removed with Grünwald's spoons and curettes, † until no polypus or other diseased tissue is left, and healthy firm bone is felt. Of course great caution is necessary to avoid getting into the orbit or through the cribriform plate. The speaker nearly always operated under a general anæsthetic and in the sitting posture, and staunched hæmorrhage as he went, so as to have the parts well in view, and kept the anatomical relations well in mind. Occasionally he operated with cocaine only. He had seen no bad result. On the other hand, the patients had been mostly well satisfied with the result of the operation, in the way of much greater relief of symptoms, of prolonged freedom from recurrence, and of diminished suppuration, and in many cases of cure lasting now over three or four years. He preferred not to plug after the operation, and it was very seldom necessary. He insufflated iodoform, and applied parolein and

* Table II., Fig. 1, 2nd German edit.

† Table II., *loc. cit.*

soothing ointments freely, to prevent the secretions consolidating into hard dry scabs, which were difficult to get away, and sometimes led to epistaxis in dislodging. After the first day he used sprays and irrigations of weak warm alkaline antiseptic lotions. To revert to the ætiology of polypus, each speaker had referred vaguely to "disease of the bone" without giving any clue as to what the cause of this disease was. There was too great a tendency to avoid this vital point. One must not assume that disease is some inexplicable inherent vice until the position has been excluded that it is a departure from the normal due to some defective adjustment of the organism to the external, or some traumatism from outside. Are such to be found in traumatisms due to falls and blows, initiating changes in the muco-periosteum which are not recovered from, and become chronic? Are polypi, etc., more common in erect humans than in quadrupeds, which are less liable to nasal injury from falls and blows? Are not the rapid and extreme variations of temperature of our inspired air, the irritation of dust and pathogenic organisms, and the chronic congestion due to nasal stenosis enough to explain the persistence of an existing traumatic muco-periostitis, if not to initiate the latter, with its sequels of polypus and bone disease?

MR. DE SANTI, whilst admitting the excellence of the paper by the opener of the discussion, could not but feel some disappointment that there was nothing new in it. Firstly, as regards the treatment of nasal polypi, he had for a long time past considered and taught that more radical measures for their removal were required. The removal of polypi by galvano-caustic loop, or by the cold-wire snare, was extensively practised up to the present time; but he considered that, though in certain cases these methods were suitable, they were generally only palliative and not curative in result. Certainly, in his opinion, the cold-wire snare was infinitely preferable to the galvano-caustic loop, as the *pons et origo* of the polyp could be torn away by it, whereas with the galvano-caustic loop the origin of the polyp was left. Taking into consideration the great frequency of recurrences in these cases, the numerous sittings required if the snare be used, Mr. de Santi strongly advocated removal by some such radical measure as described by Dr. Lack. To say that radical measures were new was totally wrong; the older surgeons, such as Mitchell Banks, Jacobson, etc., had strongly advocated removal of the middle turbinals with all the polypi that might be growing from them, and though it had been the custom for laryngologists to decry these operations and speak of them as barbarous, Mr. de Santi was glad to hear at this meeting that

laryngologists were inclined to favour the more frequent use of general operative measures. Dr. Lack's operative procedure was hardly new; the speaker himself had on several occasions scraped out masses of polypi under general anæsthesia, sometimes with the sharp spoon, sometimes with the ring-knife, and he also used forceps and scissors. In Mr. de Santi's opinion, therefore, radical operation should be resorted to much more frequently for the cure of nasal polypi. Under the older methods of treatment by the snare the patient became a regular "annuity" to the surgeon, and at the end, after an expenditure of much time and money, and suffering a good deal, was often no better. As regards the pathology of nasal polypi, he considered there was not the slightest evidence of rarefying osteitis as the cause. Why should there be rarefying osteitis? Surely such a condition would have an origin such as syphilis, injury, etc. He looked upon any rarefying osteitis that might be present as secondary to the polypi, and not a primary condition. As a matter of fact, he came to the conclusion that nothing was really known as to the pathology of nasal polypi; at all events, he himself was quite ignorant of their causation, and he believed that to be the condition of most members of the Society present.

Dr. HERBERT TILLEY thought that Mr. de Santi should have drawn a definite distinction between Dr. Lack's operation and the somewhat promiscuous intra-nasal operations with which Mr. de Santi had credited other surgeons. In the presence of so distinguished a surgeon as his former teacher, Mr. Christopher Heath, the speaker hesitated to deprecate too strongly the use of forceps in the removal of nasal polypi, because in his student days he had constantly seen them used. He was constrained, however, to point out the ease and perfection with which nasal polypi could be painlessly removed by means of a wire snare, guided by means of a reflected light. This was a very different proceeding from the use of forceps. Under the latter circumstances he had frequently seen healthy mucous membrane and pieces of middle and inferior turbinate bones removed, while more often than not, only a few polypi were removed, and inefficient removal was talked of as "recurrence of the growths." The operation advocated by Dr. Lack was an entirely different procedure, in that it was scientifically conceived, and should be carefully and skilfully executed; furthermore, the operation was limited to diseased structures. The speaker could testify to the efficiency of the operation in those cases where careful removal by means of a snare had failed to produce immunity from recurrence. He had

obtained some excellent results in such cases. He thought that in some cases, possibly the majority, mucous polypi originated in the mucous membrane, and that the bone was secondarily involved. The inflamed bone would then keep up the formation of polypi, even though the latter were from time to time removed. In support of this view he adduced those somewhat exceptional cases where mucous polypi grew from the septum, and those common cases in which they lined the walls of suppurating accessory cavities in which the underlying bone was not, as a rule, diseased. As to the primary cause of the inflammation, he had as yet no definite opinion to offer. That well-marked bone changes were met with in cases of nasal polypi seemed obvious, and he could not understand how members could differ from this view after examining the microscopic specimens illustrating these bone changes which had been placed at their disposal by the introducer of the debate.

Dr. STCLAIR THOMSON still suspended his judgment on the subject of debate, and would therefore limit his remarks to some side-points. He knew that it had gone out of fashion to quote authorities on scientific, and particularly on medical matters; any appeal to authority might savour of dogma. Still, he thought it would be well before entirely accepting the views which had been advanced in the debate to recall the teaching of two well-known and trustworthy rhinologists. Hajek had thoroughly investigated the pathology of polypus, and had consistently taught that the inflammation spread from the outside inwards, and not from the bone outwards. Then Grünwald, in the latest edition of his book, which showed enormous research, expressed the opinion that "polypi, in a majority of all cases, are almost as good as pathognomonic of empyemata of the accessory cavities, or focal suppuration in the nasal passages." From his own experience the speaker was inclined to agree with this, for the more expert he became in recognising empyemata, the fewer cases he had of recurring polypi. In cases where the polypi had been most persistent, their growth ceased at once when the offending accessory sinus had been drained. Possibly the operation recommended owed some of its success to the fact that the removal of the middle turbinal facilitated drainage from the frontal and maxillary cavities, and for suppurating ethmoiditis it was, of course, particularly suitable. He understood Dr. Lack to say that one of the indications for the operation was suppuration in an accessory sinus. Unless the sinus happened to be the ethmoidal cells, Dr. Thomson thought the detection of suppuration elsewhere was, on the contrary, a contra-indication. Mr. Baber had drawn attention to a practical point, which the

speaker did not remember to have seen mentioned in most text-books. This was the danger of collapse and also of hæmorrhage in operating on nasal polypi in elderly subjects. Those who had not met with this occurrence would hardly believe what alarming symptoms sometimes ensued from removal of a simple nasal polypus in an old person.

Dr. FITZGERALD POWELL said that he thought they were under a debt of gratitude to Dr. Lambert Lack for having brought forward this scientific and practical method for the treatment of nasal polypi. Although he might not have been the first to remove by scraping diseased bone and polypi from the nose, he was, undoubtedly, the first to teach them, in a systematic and scientific manner, the best method for obtaining an early and radical cure. He had himself, since its introduction by Dr. Lack some years ago, been in the habit of practising this operation, from time to time, in suitable cases, and his experience was that it was most efficacious, entirely safe, and having the great advantage that it caused much less suffering to the patient than the repeated sittings, with the application of cocaine, and the cold snare, with their attendant pain and mental agitation. Much had been said as to the danger of the operation and the likelihood of injury to the cribriform plate of the ethmoid; but, having regard to the anatomy of the skull, it would be a difficult matter, and force would have to be used to push a large Meyer's ring-knife up so far. On the other hand, it would not be difficult to injure the orbit, but with care this could be avoided. With regard to the pathology, he had no doubt that in a large number of cases a condition of rarefying osteitis, or perhaps necrosis, resulted, the causation of which might well be ascribed to syphilis, tubercle, traumatism, or sepsis. But, on the other hand, he thought it quite possible that a condition of inflammatory œdema might arise in the mucous membrane, blocking the orifices of the mucous follicles, and to this cause he ascribed in some cases the presence of one or two small polypi, such as he had found growing from the septum or the upper edge of the posterior choana, and projecting into the post-nasal space. He had removed them with the cold snare at one sitting, and had had no recurrence after two years. During the operation there was a considerable amount of hæmorrhage, and after the commencement of the curetting he was not able to see very much, and had to rely on what he could feel with the finger and the curette. He considered it very necessary for the control of the hæmorrhage to plug the nose, and he always did so, using strips of iodoform gauze, which he kept in the nose generally

for two days, changing the gauze after the first twenty-four hours. Occasionally a recurrence of the polypi did take place after the operation, but they were few in number, and could be removed by the snare or a second scraping, which effectually removed the tendency to recur.

Mr. WAGGETT said that apropos of Dr. StClair Thomson's remarks *re* ethmoidal cell disease, it was interesting to note a paper by Lichtwitz, in which attention was drawn to the unexpected frequency of accessory sinus empyema, as detected in the post-mortem room. That author stated that, whereas in the Special Clinics of Chiari and himself only 2 per cent. of the total number were noted as empyema cases, the evidence of general post-mortem rooms showed that class of disease to be vastly more frequent. The reports of Harke, E. Fränkel, and Lapelle recorded over 100 cases from a total of 700 autopsies. Among sixty-three cases detected in the post-mortem room only one had been suspected during life. With regard to the general question of the relation of mucous polypi to bone changes, it was interesting to note that some of the speakers, while admitting such a relation, asserted that the bone changes were of secondary origin and due to the polypoid degeneration of the mucous membrane. In the face of Dr. Lack's thesis, the assertions of dissentients should be supported by evidence. It was not surprising that the ethmoid bone, which differed in many respects from any other bone in the skeleton, should be subject to a pathological change of the character of a rarefying osteitis not met with elsewhere.

Dr. WILLIAM HILL hoped that a wrong impression would not be created outside the Society by reason of the general terms in which those who approved of radical measures on the ethmoidal cells had spoken on this occasion. The object, of course, of those who attacked a case of polypous disease with ethmoidal suppuration, whether according to the method of Lack or Grünwald, or other operation similar in principle, was to remove the whole of the disease under a general anæsthetic at one sitting. As a matter of personal experience, however, he felt bound to admit that this ideal was not always attainable, even at a long sitting. He had the advantage of possessing a slender little finger, with which he explored the nasal fossæ during the course of an operation; but in spite of every precaution he had often either left some polypi behind or insufficiently opened the ethmoidal cells, so that further operations under anæsthesia were sometimes necessary; and there was generally some trimming up to be done with snare or punch forceps at subsequent sittings under cocaine. The snare operation

alone was only useful in simple cases, and was rarely, if ever, radical in recurrent and suppurative ones. In clinical teaching, whilst calling the attention of students to the inartistic and sanguinary methods of treatment adopted by those general surgeons who used *blindly* to push forceps up the nose and remove all they could lay hold of, including an occasional turbinal, diseased or otherwise, the speaker had always been careful to call attention also to the fairly good results attending such measures, in spite of the absence of technique; and, what was more remarkable, as far as he could gather, no fatal result had attended the use of the forceps, even in inexperienced hands; and, generally speaking, the operation had not led to harmful sequelæ, though doubtless it often failed in its object from imperfect removal. In conclusion, he agreed with those speakers who insisted that where ethmoidal suppuration was present some radical measure, such, for instance, as that advocated by Dr. Lack, was essential to insure a cure of nasal polypus.

Dr. DUNDAS GRANT said that there could be no doubt that Dr. Lack's operation ought to be looked upon as a received surgical procedure, the only possible difference of opinion being with regard to its indications. Those laid down by Dr. Lack pointed to suppuration of the ethmoidal cells. With regard to the necessity for radical operation in cases of recurrent polypi, he thought it might sometimes take other forms, *e.g.*, there were cases in which the polypi could only be eradicated after an opening had been made into the antrum. Dr. StClair Thomson indicated that free washing out of the antrum had caused disappearance of polypi; he had himself also observed this. In other cases that had not occurred, and several times he had thought it justifiable to open the antrum of Highmore and clear away its entire inner wall with the unciform process for the purpose of eradicating polypi situated in the middle meatus. Sometimes there might be polypi growing from the front of the sphenoid bone. He related a case in which he had removed such a polypus. With regard to polypi in the post-nasal space, a general anæsthetic was in his opinion necessary, the left forefinger being introduced into the naso-pharynx. The difficulty in putting the snare round such a polyp was considerable, and the forceps, passed through the nose under the guidance of the finger in the naso-pharynx, was the only instrument which could be used under a short anæsthesia like that of nitrous oxide gas. In order to get complete removal of polypi and to get a snare applied to as many polypi as possible, it was often necessary to remove the anterior part of the middle turbinate body. There was

sometimes another form of obstruction which had to be removed, and that was the polypoid swelling on the anterior lip of the hiatus semilunaris, which sometimes projected to a considerable degree into the nasal cavity ; and the only way of removing it satisfactorily was that recommended by Killian, which he (Dr. Grant) had himself done several times. It was to pass the point of a sharp pair of scissors right into the middle of the growth, and to remove the upper and lower half separately by means of the snare. This had enabled him to reach and remove a polypus which was inaccessible both to vision and to touch until that was done. Nobody, he was sure, would regret more than Dr. Lack if it became the custom for all and sundry to perform his operation on every patient who had polypi of the nose. In a wisely-selected number of cases, however, it was absolutely indispensable, and offered the most promising results.

Dr. Bond heartily supported Dr. Lack in his method of operating, but there were certain cases in which one might come to grief. Dr. Lack's method of operating was different from Banks', which latter consisted in taking hold of the middle and upper turbinates and pulling away with forceps as much as possible from the top and middle of the nose. Dr. Lack's operation was a different thing altogether, but one might have trouble in operating if one did not pick one's cases somewhat carefully. The most serious cases were those referred to by Dr. StClair Thomson, namely, cases of polypi occurring in women over sixty. In such a case the front of the nose on each side was commonly seen to be filled with what seemed to be ordinary polypi, but the case was often one of malignant disease with polypi in front. If in such a case Dr. Lack's procedure was used under the belief that the case was one of general nasal polypi, the operator would be surprised at the result. There were other cases where the nose was very much obstructed, and a little œdema and granulomatous tissue might be seen in front, with syphilitic necrosis, etc., behind. On scraping away vigorously in such a case a violent hæmorrhage might occur. He had seen one instance of such a case. Somewhat active treatment at the posterior part of the nose was carried out, and the sphenoid cavity opened and packed, but with damage to the vessels inside the skull. Dr. Lack's operation was, in his opinion, an admirable and successful one. He wished to mention that there was no danger of damaging the cribriform plate, etc., if the operation were done with ordinary skill ; such danger was in large part imaginary. The second point he remarked on was that the cautery had ceased to be used and recommended, as in times past, in the

treatment of nasal polypi. It was recommended in the text-books as of use in treating polypi, and cauterization of the stumps was advocated. He believed the latter to be a great factor in the production of bone disease. He thought curetting of the mucous membrane should be employed more than it had been. In conclusion, he thought the individual factor played a very important part in the comparative success of the operation; one operator would get good results from Dr. Lack's method, whilst another would get much the same result from operations with extensive curettings carried out at several sittings.

Dr. WYATT WINGRAVE said, with reference to the pathological aspect of the discussion, Dr. Lambert Lack's specimens illustrated one phase only of polypus formation. Many of the sections showed only normal cancellation changes, a process of osteoporosis which is essential to the development of the accessory sinuses, and continues until very late in life. The "osteoclastic" operations so well seen in this rarefying process are often misinterpreted as being morbid; but it is only when greatly exaggerated that they should be so construed. In some of the slides the periosteal and osteoblastic activity was well marked, but this he considered as bearing only a coincidental relationship to the simple form of polypus. For all practical purposes polypi might be divided into two groups: (1) simple, and (2) granulation. While the first group retained to a great extent many of the local histological features, the second group consisted almost entirely of small cell tissue in various degrees of myxœdematous degeneration, so that when fully developed they could not easily be distinguished from the simple variety. It was in the granulomatous group that the osseous changes were the more marked, so that the polypus was only symptomatic of deeper sinusal changes. Reference had been made to the necessity for exercising care when removing polypi in the aged. Whilst emphasizing this, he thought that in addition to the risk of hæmorrhage from senile changes in the blood-vessels, there was also a danger due to advanced cancellation. The rarefaction was often so extensive that the turbinals proved to be as brittle as "biscuit," and great care had to be exercised in limiting the amount of bone removed with the polypus.

The PRESIDENT congratulated the Society on a most useful discussion; he thought that from this time forward a more or less new departure would go forth to the world as being the view held by certain members of the Society, stamped with the approval of the Society. The only thing to be afraid of was that this somewhat radical method of treatment might be adopted by men who had not

the skill of the great majority of the members of the Society. It was a point which ought to be emphasized, and which had been emphasized at a previous meeting of the Society. It was a method only to be employed in exceptional cases, and by those who had an exceptional amount of experience of intra-nasal disease. Another important point was the care to be exercised when polypi occurred in old people. This had been overlooked in the past. The stress laid upon this was an additional gain to science and medicine.

Dr. H. LAMBERT LACK, in reply, thanked the members of the Society for the reception of his paper, which was more favourable than he had expected. In reply to Mr. Baber, he said he had watched some of his cases as long as six years, and so far from destroying the power of smell, in some of the most chronic cases, in which the patient had smelt nothing for years, it had returned after the operation. With Mr. Spencer's remarks he could not agree; but there was not time to go into them all. He doubted whether anything at all comparable to a nasal polypus ever arose apart from bone, for the rectal polypus was an adenoma, and these and other similar "polypi" were true tumours. The old idea that nasal polypi were tumours he thought had been given up years ago, and therefore he had not considered it worth while to allude to it. The structure and whole history of nasal polypi quite precluded such a theory. He had, however, very carefully separated granulation and inflammatory growths from nasal polypi, as they were both microscopically and clinically quite distinct. Again, Mr. Spencer said that there were all stages between a nasal polypus and sarcoma. There was no evidence to support that view. A nasal polypus might be removed year after year and still never become a sarcoma. Several speakers, whilst reluctantly admitting that bone changes took place, claimed that they were secondary to, and not the cause of, polypi, and yet could bring no evidence. On the contrary, when the diseased bone was removed, recurrence of polypi did not take place, but when the polypi alone were removed the bone changes continued and the polypi recurred. He had not claimed that he was the first to advocate the removal of bone. This was done one hundred and fifty years ago by Morgagni and Valsalva. Morell Mackenzie had published (in his book on "Diseases of the Horse") notes of several cases of recurring polypi in which, after he had removed the underlying bone, recurrence no longer occurred, in spite of which Mackenzie advocated the cautery in all cases. Further, Ferguson and Pirogoff had recommended the removal of the bone. But they had not advocated the thorough operation which the speaker had proposed, and neither had Grün-

wald. When he started to investigate the subject of the pathology of polypus he had an open mind, but on discovering the changes in the bone which were illustrated under the microscope that night, he came to the conclusion that Woakes's views were in large part correct. Where Martin had not found bone changes, perhaps it was because Woakes had removed the bone in other than polypus cases, as he ascribed many diseases to "necrosing ethmoiditis." He agreed with Dr. Powell that it was not at all easy to push a large ring-knife through the cribriform plate, and such an accident could be avoided with a little care. Dr. Tilley had said that in cases of polypi in the accessory sinuses bone disease was not always present, though the bone had never been removed for microscopical examination, and thus there was no conclusive evidence that osteitis was not always present. He could recall cases of polypi in the sinuses in which bone disease was undoubtedly present. In two cases the sphenoidal sinuses were affected, and in both the anterior wall of the sinus was extensively carious; and in two other cases in the antrum the inner wall was extensively destroyed. This evidence, as far as it went, contradicted Dr. Tilley's statement. Dr. Thomson seemed to approve Grünwald's theory. He did not think it was the general experience that sinus suppuration was invariably present in polypi. With the most careful examination it was in all probability found in less than 50 per cent. of the cases, and probably the same cause that produced the one might produce the other. Mr. Waggett had quoted *post-mortem* evidence to show the enormous frequency of sinus suppuration, which only showed that *post-mortem* records could not be accepted. The reasons of this frequency seemed to be that the accessory cavities had their openings at the top, and therefore the secretion formed depended entirely on the action of the ciliated epithelium for its removal. Thus when just previous to death this action ceased, or became inefficient, fluid accumulated in the cavity, and German authors seemed to accept the least trace of any sort of fluid as evidence of sinus suppuration. He agreed with Dr. Hill that one might have to trim up the case afterwards with a snare; but in most of his cases he had removed everything at one operation. He would try and avoid Dr. Bond's three classes of dangerous cases, and certainly would never operate in the old or the feeble. In replying to Mr. Wingrave, Dr. Lack said that although some of the bone in his sections was normal, abnormal places were to be found in every section if looked for.

Mr. CRESSWELL BABER, in reply, said, with regard to the question of the starting-point of the inflammatory trouble causing polypi, whether in the mucous membrane or in the bone, he thought the

clinical evidence seemed in some cases to favour the former theory, the reason being that, as he had pointed out, mucous polypi were met with under so many different conditions. Two of the latest observers, Hajek and Cordes, found cases in which the mucous membrane only was affected; in these cases, then, how could the bone be the cause? He was interested in Dr. Lack's operation, and thought it was one to be tried in suitable cases; before it was done the state of the larger sinuses ought to be investigated. He was glad that several members agreed with him as to the necessity for caution when removing polypi in the aged.

ANNUAL MEETING OF THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Held at 11, Chandos Street, London, December 3, 1900.

Sir W. B. DALBY, *President, in the Chair.*

A Case of Deafness, Perversion of Taste, and Facial Paralysis associated with Herpes. Shown by Mr. A. H. CHEATLE.

The patient, an unmarried woman aged twenty-seven, had never suffered from her ears until the present attack. No definite history of syphilis could be elicited, but she had pigmented scars upon both legs, and a smooth ulcer the size of a threepenny-piece on the calf of the left leg. A fortnight before being seen at hospital she noticed some "blisters" on the right of the middle line of her neck below the chin and above the sternum. Several other such spots appeared in lines running to the back of the neck, as well as an isolated one immediately in front of the lobule of the ear. Shortly after the appearance of these spots, severe neuralgic pains were experienced in the back of the neck and behind the ear, together with a roaring noise and deafness in the right ear. Right facial paralysis was also present. A week after the facial paralysis appeared, she had an attack of vertigo, lasting two days, accompanied by vomiting. Her sense of taste also became perverted. On examination there was right facial paralysis, the right membrane was slightly retracted. She was placed on iodide, and counter irritation was used behind the ear.

Mr. CHEATLE desired to know whether any of the members present had met with a similar case, as he considered the symptoms associated with this particular case very uncommon.

Dr. MILLIGAN asked whether the patient had had any previous attack of Russian influenza. He considered the case to be one of peripheral neuritis, probably post-influenzal.

Mr. BALLANCE agreed with this expression of opinion.

Mr. CHEATLE replied that the patient had not had influenza lately, but she was exposed to cold a few weeks before the present symptoms came on.

Notes of a Case of Bilateral Auditory Nerve Paralysis in a Case of Intracranial Tumour. By Mr. C. H. FAGGE.

The patient, a female aged nineteen, was admitted into Guy's Hospital, under the care of Dr. Hale White, in October, 1900, complaining of vomiting and dizziness. The patient's mother had suffered from ear disease. The patient began to get deaf upon the left side, and to suffer from noises in the ear and from giddiness. Shortly afterwards she became gradually deaf in the right ear, her eyes also began to trouble her, the left becoming blind, and shortly afterwards the right also. On admission she was found to be blind in both eyes, and deaf in both ears, and complained also of noises in the head and dizziness. No paralysis of motion, but a tendency to fall slightly to the left side when walking. No alteration of sensation. Frontal and occipital headache. Reflexes normal. Mental faculties good. Speech normal.

Mr. CHEATLE asked about the characteristics of the vertigo. Was it true auditory vertigo? He hoped that if the patient died Mr. FAGGE would secure section of the labyrinth of both sides, and a full post-mortem report.

Dr. MILLIGAN asked whether puncture of the lumbar theca had been performed, and the fluid analyzed. He did not think the symptoms warranted the diagnosis of tumour, but of basic meningitis, which was slowly increasing, and which was possibly of syphilitic origin.

Mr. FAGGE, in reply, said that the patient was so deaf and ill that he was unable to make her understand anything, but she volunteered the statement that things went round her. In answer to Dr. Milligan, he said that no lumbar puncture had been performed.

A Case of Double Ossiculectomy for Chronic Middle-Ear Suppuration. Shown by Mr. R. LAKE.

The patient, a female aged thirty-three, had had scarlet fever when two years of age, with subsequent discharge from both ears. She was married at the age of fifteen; has had pneumonia,

nephritis, and undoubted specific disease. The discharge from her ears had been practically continuous ever since. When examined, the right membrane was found destroyed, with the exception of a small outer rim. The left was perforated in its lower part, and had a second perforation leading up to the antrum.

Local treatment was adopted for three months; but as pain, giddiness, and discharge were still complained of, the ossicles, the remains of the membrane, and the outer attic wall were removed under ether narcosis. Healing took place upon the right side in four weeks, and shortly afterwards upon the left side.

Mr. CHEATLE asked how long the discharge had lasted, and what was the cause?

The PRESIDENT said the middle ear of the patient seemed very dry and satisfactory. He thought that one could not well foretell what the condition of the hearing would be after removal of the ossicles.

Mr. HILL asked whether Mr. Lake had only practised ossiculectomy, or whether he curetted the attic afterwards. Also whether Mr. Lake removed the outer attic wall under a general anæsthetic.

Dr. BRONNER asked whether insufflations of iodoform had been used six or seven times a day.

Mr. FAGGE asked whether Mr. Lake operated under a local anæsthetic.

Dr. MILLIGAN asked whether any preliminary antiseptic treatment had been adopted.

Mr. BULL said that the case could not be regarded as a true case of ossiculectomy, as Mr. Lake had burred away the outer wall of the attic.

Mr. CHEATLE said that they had come to the conclusion that the outer attic wall should be removed when ossiculectomy was performed.

Mr. LAKE, in reply, said that the discharge had lasted thirty years, and that the original cause was scarlet fever. In performing ossiculectomy, he always removed the outer attic wall, and cleared out everything he could. He thought local anæsthesia insufficient in such cases. Previous antiseptic treatment had been employed for three months before any operation was attempted.

Patient upon whom the Complete Mastoid Operation had been performed; subsequent Epithelial Grafting. Shown by Dr. HERBERT TILLEY.

In discussing this case, Mr. BALLANCE said that Dr. Tilley had completed the operation by means of small epithelial grafts,

instead of opening up the wound again under a general anæsthetic. He (Mr. Ballance) did not think that the question of giving the patient an anæsthetic a second time should enter into the decision. As Dr. Tilley had already mentioned, the appearance was not just as the title of the communication indicated. There was a crescentic perforation in that portion of membrane which stretched across the deeper part of the meatus. This membrane was in the position of the membrana tympani, so that the scar-tissue membrane had grown up leaving a large perforation in its centre, through which pus was oozing. He did not think that the tympanum, the attic, or possibly a portion of the antrum, had taken the graft. Probably the fault was not Dr. Tilley's, as the patient had gone away before the completion of the treatment. He thought that Dr. Tilley had not removed all the soft parts at the first operation. In performing the radical operation, he advised complete clearing away of all the soft tissue.

In reply to Mr. Ballance's remarks, Dr. TILLEY said that it was two and a half months since he had seen the patient. He (Dr. Tilley) applied several grafts. The patient insisted on returning to business before complete healing had taken place. He was sure that at the first operation all soft parts were completely cleared away. He brought forward the case as he considered it illustrated an alternative plan of dealing with the grafting process.

Mr. BALLANCE said that in cases where grafting was adopted the personal attention of the surgeon was necessary in order to secure a good result.

New Portable Motor for Surgical Purposes. Demonstrated by Mr. BALLANCE and Dr. MILLIGAN.

This apparatus was specially designed for operations about the mastoid region. The motor was made so that it would stand firmly upon an ordinary table. It was about one-twelfth of a horse-power in strength, and ran quietly and steadily. The speed could be regulated by a foot arrangement. The bur was attached to a flexible steel arm, which enabled it to be used at a considerable distance from the motor. The hand-piece was detachable and simple in construction. It could be taken off and sterilized.

Abstracts.

DIPHTHERIA.

E. E. Laslett.—*The Treatment of Severe Cases of Diphtheria with Saline Infusions.* "Lancet," October 20, 1900.

Saline infusion has now become a well-recognised therapeutic measure in many forms of acute septic disease. This paper is a preliminary account of the results of its use in cases of severe diphtheria. It is generally considered now that under the influence of antitoxin treatment numerous cases of diphtheria recover from the acute stage that would have been fatal, in all probability, in the first few days of illness in the period before the introduction of antitoxin. Unfortunately, however, these cases are frequently disappointing in later stages. At a variable time, after all membrane has disappeared, sometimes as early as the seventh day of illness, signs of serious heart failure appear, accompanied, as a rule, by persistent vomiting. So frequently does this happen, that after some experience of diphtheria work, one can foretell with considerable accuracy which cases will develop this heart failure, a most serious sequela which in the majority of instances proves fatal.

The pathology of this condition has been well studied, and extensive fatty degeneration of the heart muscle has been found in nearly all cases. Villy* found it markedly present in fourteen out of fifteen cases in which death resulted from cardiac failure, and an important feature is the early period of the disease at which the fatty change develops. In one case Villy found it as early as the fourth day of illness. The fatty degeneration of the heart muscle is probably independent of nerve injury, but whether this is so or not, it is certainly ultimately the result of the action of diphtheria toxin.

1. *In the Late Stage.*—Its use is particularly indicated when, during the persistent vomiting, nutrient enemata are also rejected. Inasmuch as the fluids of the body are thus constantly diminished, the blood must become more viscid, and the work of the heart thereby much impeded. The absorption of a considerable quantity of saline fluid will therefore tend to diminish this viscosity, and will consequently relieve the heart. Some six cases were treated in this way, but they were all ultimately fatal, probably because the damage already done to the heart was too severe to be recovered from. However, the treatment seemed to prolong life, and certainly made it more tolerable by the relief of the thirst and restlessness which are essential accompaniments of this condition.

2. *In the Acute Stage.*—At an early stage of the disease, the introduction of additional fluid into the blood system will, it may be supposed, dilute the toxin, or help its excretion by producing diuresis. We are not aware of any experiments to prove the excretion of diphtheria toxin by the kidneys in man, but in the case of the lower animals its excretion in the urine has recently been demonstrated by Cobbett.†

Fifteen cases in all were treated in this way. They were chosen on account of their severity, the main indications being the presence of much spreading membrane, nasal discharge, and great fœtor of the

* *Medical Chronicle*, September, 1899.

† *Lancet*, July 7, 1900, p. 22.

breath. The infusion was carried out in the first instance as soon as possible after the admission of the patient, and was continued during the first, second, and occasionally the third day. A solution of common salt of the strength of two teaspoonfuls to the pint was always used. The injections were made under the loose skin below and outside the right breast. The pressure used was that of about from $1\frac{1}{2}$ to 3 feet of water, which is quite sufficient and insures the gentle and uniform distension of the subcutaneous tissue, and thus produces very little pain. The salt solution was boiled, then covered over in a pint measure, and allowed to cool till it was just as hot as the hand could bear. It is impossible, however, to judge of the temperature of the saline solution as it passes into the skin, on account of the rapid cooling that takes place in the indiarubber syphon tube. By this means from 10 to 15 ounces may easily be injected in half an hour, and it is surprising how little discomfort it produces. During the process children are readily soothed, and quite commonly fall asleep towards the end of the injection.

The condition of repose brought about by the infusion is an undoubted fact, and is probably due partly to the sense of warmth produced, and partly to the filling of the blood-vessels as absorption of the solution occurs. Certainly the pulse tension as determined by the finger rises rapidly. Craig* in a large number of observations on insane patients found that in melancholia the pulse tension is raised, while in mania it is below normal. In a subsequent paper† he refers to the beneficial effect of rectal injections of salt solution in conditions of maniacal excitement. One of the worst features in a severe case of diphtheria is the condition of extreme restlessness during the first few days of illness, which prevents anything but mere snatches of sleep being obtained. The relief of this condition by the infusion is very real, and contributes considerably to the beneficial effect of the treatment. Owing to the youth of the patients and the severity of the illness, the urine is commonly passed in the bed, and consequently it has only rarely been possible to determine the influence of the treatment in the direction of diuresis. In one or two cases diuresis was certainly well marked, and it continued for a day or two after the treatment had ceased.

StClair Thomson.

MOUTH, Etc.

Aron.—*A Path of Infection in Man.* "Wien. klin. Rundsch.," No. 27, 1900.

The crypts (lacunæ) of the tonsil contain the most varied pathogenic bacteria or parasites, which under certain conditions are able to produce infection of the organism. The author mentions cases of pneumonia with streptococci, and one case of typhoid fever after angina lacunaris.

R. Sachs.

Anglise, W. G. (Kingston).—*Double Hare-lip with Complete Cleft Palate.* "Kingston Medical Quarterly," July, 1900.

The patient, male, æt. fifteen years, was found to have complete double hare-lip, with flattening of alæ nasi, protrusion of os incisivum,

* *Lancet*, June 25, 1898, p. 1742.

† British Medical Association, 1900.

with attached central incisors, and complete cleft of hard and soft palate, including uvula.

The first operation consisted in removing the protruded bone and suturing the palate. After freeing the labial covering with a scalpel, the os incisivum was separated from the vomer by bone forceps, bleeding being checked by the use of the thermo-cautery. Then the two sides of the soft palate, including the uvula, were united by horsehair sutures. For the closure of the hard palate Langenbeck's method was adopted, lateral incisions being made on each side parallel to the cleft extending down to the bone. Then a periosteum elevator was introduced, and muco-periosteum flaps raised clear through to the cleft. Interrupted silk sutures were inserted to retain the flaps in position. The result was fairly good. Anteriorly and posteriorly firm union was obtained, a small oval opening in the centre, of the size of $\frac{1}{2}$ inch by $\frac{1}{4}$ inch, only being left.

The second operation was performed a fortnight later. The central labial portion was pared laterally, making it V-shaped. The lateral margins were then freely separated from the bone, and freshened according to Rose's method. The sutures used were silver wire, silk-worm gut and horsehair. Primary union was obtained, articulation became much more distinct, and facial deformity was largely removed. Very satisfactory photographs, before and after, are given.

Price Brown.

Marcel Labbé and Ch. Lévi-Sirugue.—*Structure and Physiology of the Faucial Tonsil.* "La Presse Méd.," August 3, 1900.

In the anatomical part of this paper the authors first give a detailed description of the macroscopic and microscopic anatomy of the tonsil of the rabbit; secondly, shortly refer to some points in which the tonsils of other animals vary from this type; and, thirdly, give a short description of the human tonsil. In the second part of the paper they discuss the development of the tonsil, and in the third part its physiology. The most interesting part of the paper is the description of the lymphatics of the tonsil. The beginnings of the lymphatics are to be found in the lymph spaces of the reticulum, between the follicles, and in the periphery of the follicles. These lymph spaces are continued by the capillaries and lymphatic vessels, "bounded by a complete wall," which are found in the peritonsillar connective tissue. The authors insist on the "direct continuity of the reticular spaces with the peritonsillar lymphatics."

The rôle of the tonsils is to produce leucocytes. In the centres of the follicles lymphocytes are transformed into mononuclear leucocytes; in these active karyokinetic changes are seen; therefore the tonsil is to be regarded as a hæmatopoietic organ, analogous to the lymphatic glands. No polynuclear leucocytes are produced in the tonsil; any that are found there have been carried thither in the blood. They may often be found penetrating the epithelium, but the mononuclear leucocytes are all, or nearly all, carried away by the lymphatics. A few may possibly penetrate the epithelium, but the appearances, which have been described by many authors as an emigration of lymphocytes through the tonsillar epithelium, are really due to an active new growth of the epithelial cells. As to the absorption of germs, dust, etc., by the tonsils, the authors doubt its occurrence. Probably it does not take place unless the epithelial surface has been broken, and even then

it goes on very slowly. The tonsil, therefore, does not protect the organism by the production and pouring out of phagocytic polynuclear leucocytes, nor by absorbing and destroying noxious agents, but by aiding other glands in the production of defensive leucocytosis.

Arthur J. Hutchison.

NOSE, Etc.

Bertemès.—*Mucous Polypi and Epithelioma of the Nasal Fossæ*. "Rev. Hebdom. de Laryngol.," etc., September 15, 1900.

Do nasal mucous polypi ever undergo epitheliomatous degeneration? Virchow states that nasal polypi may become the seat of cancerous or canceroid changes. Plique asserts that after removal of benign polypi they are frequently replaced by epitheliomatous polypi, but neither author cites a single case in point. Péan recommends a very thorough removal of polypi in order to prevent their recurrence and degeneration, sarcomatous or epitheliomatous. Bayer reports a case of a carcinoma implanted on a simple mucous polypus, but he does not prove that the polypus existed before the cancer. It is therefore possible, or even probable, that the cancer gave rise to the polypus. Schiffers reports two cases of transformation of mucous polypi into epitheliomata, after frequent operations, in two patients aged sixty-seven and seventy-one respectively. In one case the transformation was incomplete, the nose remained free and the general health good; in the second the polypus may not have actually undergone an epitheliomatous degeneration, but may rather have been invaded by a cancer in the neighbouring parts.

The author reports two cases in which the circumstances were very favourable to the cancerous degeneration of the polypi. One had nasal polypi for some fifteen years, and had been operated on several times. He also had an epithelioma removed from his lower lip nine years ago. The conditions found by the author were typical simple polypus in the anterior part of one nasal fossa, and epithelioma involving palate and floor of same fossa. In the other case polypi had been present some ten years and frequently operated on. More recently pain, sanious discharge, etc., had appeared. The conditions found were typical simple polypus in the anterior part of the nose, and typical epithelioma in the posterior part of the same side. In a series of sections made of these growths no evidence could be found of any transition of polypus into epithelioma. The growths were typical simple polypi on the one hand, and typical cancers on the other. The author does not deny the possibility of a polypus undergoing cancerous degeneration, but maintains that the fact has still to be demonstrated.

Arthur J. Hutchison.

Connell, J. C.—*Hay Fever*. "Canadian Practitioner and Review," August, 1900.

In a fair percentage of cases treatment for four or six weeks prior to the usual period of attack is productive of good results. In anæmic cases iron and arsenic are the remedies chosen. When no anæmia exists, strychnia, valerianate of zinc and lithia are applicable.

Foci of irritation within the nasal cavities should always be removed by operative measures.

During the period of attack two remedies are used—one internally, the other locally. The former consists of ammonal in 8-grain doses, taken once or twice a day; the latter of a combination of stearate of zinc with aristol, used as a dusting-powder within the nasal cavities. In this way his patients have been made comfortable, and the attacks shortened. *Price Brown.*

Goldsmith, P. G.—*Sarcoma of Right Nasal Fossa with Acute Sinusitis and Orbital Cellulitis.* "Montreal Medical Journal," October, 1900.

Report of a case affecting the right nasal fossa, extending to the antrum of the same side, and causing protrusion and pain of the right eye. Operative treatment only produced temporary relief. Microscopical examination proved it to be sarcoma of the small round-celled variety. *Price Brown.*

LARYNX.

Taptas.—*Extirpation of the Larynx for Sarcoma; External Artificial Larynx.* "Annal. des Mal. de l'Or.," January, 1900.

The case of a woman of forty-six, giving a history of laryngeal symptoms of three and a half years' duration, and of tracheotomy for urgent dyspnoea eight months previously. The larynx was occupied by an extensive fungating tumour which proved to be a round and fusiform celled sarcoma. Removal was accomplished after erosion of muscles from their laryngeal attachment, section of the trachea, and separation of the organ from its attachments from below upwards. The tracheal tube was maintained in the original tracheotomy wound, and the skin sutures immediately above the latter were made to include the anterior œsophageal wall in order to completely shut off the lower from the upper portion of the wound. An attempt was made to close the pharynx by suturing, but fistulation occurred below the hyoid bone. After the third day food was conveyed to the stomach by a urethral catheter passed through the nose. Recovery was uneventful, a small subhyoid fistula persisting.

About the sixth week an artificial larynx was adjusted. This consisted of a tracheal and a pharyngeal portion in metal, united by an external rubber tube. The former was an ordinary tracheotomy-tube, with an extra outlet close to the external orifice for the attachment of the rubber junction-tube. The pharyngeal portion was a curved tube, terminating internally in a rubber valve tube, permitting air to enter the pharynx and preventing the return of food and saliva. When speech was desired, the patient merely occluded the opening of the tracheotomy-tube with her finger. With this apparatus a loud whisper could be produced. It was found that even in the absence of the apparatus the patient could emit an intelligible whisper, a phenomenon attributable to the air in the mouth and pharynx, possibly supplemented by the passage of air from the stomach under forcible contraction of the diaphragm. Unfortunately, recurrence took place in the wound.

Ernest Waggett.

ŒSOPHAGUS.

Raw, Nathan.—*Membranous Œsophagitis; Expulsion of a Complete Cast of the Œsophagus.* "Lancet," January 5, 1901.

The patient was a heavy drinker, aged forty-six. After a violent fit of coughing, he vomited a complete cast of the œsophagus, $8\frac{1}{2}$ inches long. The cast weighed $2\frac{1}{4}$ ounces, was of a dirty-greenish appearance, and was streaked with a purulent coating of blood-stained pus. The smell was most offensive, and some disinfectant had to be added at once. It had all the appearance of a complete œsophagus, but on examination the muscular layer was not present. The patient coughed and vomited up a good deal of purulent matter, and seemed much relieved; but the pain on attempting to drink any fluid was so intense that he was afraid afterwards to try. He was fed on nutrient enemata for two or three weeks, when he again was able to swallow some fluids without much pain, but was only able to get down a very small quantity at once. He was losing flesh rapidly, and it was quite evident that he had considerable stenosis of his gullet, and that it soon would be complete. Accordingly gastrotomy was performed.

The operation was quite successful, as the incision healed by first intention, and the sutures were removed on the eighth day. He recovered nicely for a time, and was able to feed himself regularly, but three weeks after the operation he commenced to regurgitate large quantities of gastric juice followed by the food in a form which, except for the curdling of milk, did not appear to be altered.

After-progress.—It was evident that, despite washing out his stomach regularly with an antiseptic and the most careful feeding, he was not able to digest food; and it occurred to the author that perhaps the mucous membrane of his stomach and intestine might be similarly affected. He was, in addition, fed per rectum, as he could not swallow at all, there being complete stenosis of the gullet. He accordingly slowly went downhill, and died from asthenia six weeks after the operation. His weight at death was 87 pounds.

Necropsy.—A post-mortem examination was made twenty-four hours after death. The body was greatly emaciated. The digestive organs were removed *en masse* for careful examination. The stenosis of the œsophagus was complete from the upper third right up to the pharynx. Below, down to the stomach, it would only admit a medium-sized catheter. There was no trace of any mucous lining anywhere, except near the cardiac end of the stomach, the cast having separated 1 inch above the entrance to the stomach. The stomach was small, and was firmly united to the skin wound. On opening it, one was particularly struck with the apparent absence of mucous membrane; the wall was almost smooth, and the rugæ were represented by indistinct lines; very little secreting surface was left, and that near the pylorus. There were no evidences of gastritis. The intestines were atrophied, and the mucous coat of the duodenum was smooth and thin, though otherwise healthy. There were no other symptoms of organic disease, except some brown atrophy of the heart.

The following description of the cast is by Dr. R. J. M. Buchanan, physician to the Stanley Hospital, Liverpool:

"The cast was in the form of a tube, $8\frac{1}{2}$ inches long, of a greenish-gray colour, and with a smooth, but somewhat corrugated, external surface. The inner surface of the tube had the appearance of sloughing

tissue, and it was ragged and undermined in comparison with the smooth outer surface. The cast was very tough and elastic; it was with difficulty that pieces could be cut from it for microscopical purposes. Portions of it were hardened and dehydrated in absolute alcohol passed through cedar oil and embedded in paraffin.

"Microscopical examination showed that the cast was a complete slough of the inner layers of the œsophagus as far as the muscularis externa. The superficial epithelium had almost entirely disappeared in the deeper parts of the folds of the mucosa. A very few degenerated cells remained, which were scattered in patches. Small ulcerations of the mucosa, in the form of flask-shaped pits, were completely filled with micrococci and rod-shaped bacilli. The denser tissue immediately beneath the epithelial layer had retained its characteristic structure in parts, but was broken through by the small ulcerations extending from the surface. The remainder of the mucosa and submucosa was invaded by a fibrinous network, filling up the spaces between the degenerate fibrous tissue. This fibrinous network was similar in appearance to a diphtheritic membrane. Here and there could be recognised muscular fibres from the muscularis mucosa. The meshes of the network were crowded with leucocytes and rod-shaped bacilli, the latter very varied in shape, which had stained irregularly, similar to the diphtheria bacillus. Minute hæmorrhagic extravasations from the vessels had evidently taken place at different times, and the remains lay scattered about. The bloodvessels were blocked with thrombi, and the lymphatics were dilated with coagulated exudation. The condition revealed by microscopical examination is suggestive of a submucous dissecting cellulitis, leading to complete separation of the inner coats of the gullet."

Remarks by Dr. Nathan Raw.—The case seems to be unique in this country, the few others recorded having occurred in Germany and America. The cause in this case was neat spirits, of which the patient had taken a very large quantity, and yet at the necropsy no evidence of cirrhosis of any organs was observed. The disease had evidently not been confined to the mucous lining of the œsophagus, but had attacked that of the stomach to a minor extent. With regard to the operation of gastrotomy, the author is inclined to think that Albert's method has no advantages over those of Howse or Witzel, and it is certainly much more difficult to perform, especially if, as in his case, the stomach is small and retracted. *StClair Thomson.*

E A R.

Bouglé.—*Cerebral Abscess and Meningitis of Otitic Origin.* "La Presse Méd.," August 7, 1900.

At a meeting of the Société Anatomique, July 27, 1900, M. Bouglé reported the case of a woman brought to hospital in a comatose condition and hemiplegic. Her pulse was slow and she had otorrhœa. He opened the mastoid antrum and the cranial cavity, found the dura mater bathed in pus, opened the dura mater and found a cerebral abscess, which was drained. Next day the patient was conscious and the hemiplegia less marked. But a few days later the patient died in coma.

Post-mortem, the abscess was found to communicate with the lateral sinus, and there was purulent meningitis of the opposite side.

Arthur J. Hutchison.

Grunert.—*The Present State of Otolaryngology in Great Britain.* "Lancet," December 22, 1900.

The writer expresses the opinion that those who are in the habit of systematically reading English literature are often astonished at the apparently almost complete ignorance of all foreign writings. This fact may be due to the ignorance of foreign languages so often noticeable in English surgeons, and perhaps also to their large private practices, which prevents their studying German scientific writings. So it has come to pass that Toynbee's countrymen have neglected to gather the fruits of the seed he had sown, and so the leadership of scientific progress in otology has passed into the hands of other nations. To Zaufal, of Prague, we are indebted for recommending as long ago as 1880 the opening and ligaturing of the internal jugular for sinus thrombosis, although this was not referred to by Horsley when he suggested the same operative treatment in 1886. In Macewen's book, published in 1898, he considers much as new which had long been known. The paper of Ballance on "Skin-grafting after the Mastoid Operation"* is taken as another example to illustrate the British want of familiarity with current literature. Except for some unimportant details, the description of the mastoid operation as given by Ballance does not differ from the operation which has been in vogue in Germany for the last ten years. Skin-grafting the wound was recommended by Siebenmann as early as 1893.

StClair Thomson.

PHARYNX.

Rethi.—*Latent Tuberculosis of the Pharyngeal Tonsil.* "Wien. klin. Rundsch.," No. 26, 1900.

Out of 100 cases (1895 to 1900), Rethi found six cases of tuberculosis of the pharyngeal tonsil. As tubercle bacilli were found in the epithelium, he therefore considers that they enter through the epithelium during respiration, and develop in the hypertrophied tonsil. Rethi concludes that every hypertrophied pharyngeal tonsil ought to be operated upon, because this latent tuberculosis may cause general infection.

R. Sachs.

REVIEWS.

Traité Médico-Chirurgical des Maladies du Pharynx, Naso-pharynx, Oro-pharynx, Laryngo-pharynx. Par E. ESCAT. 576 pp., 150 illustrations. Price 16 fr. Georges Carre et Cie., Paris.

The editor has set himself to his task with an evident determination to write an exhaustive treatise on the Diseases of the Pharynx, with their medico-chirurgical treatment, and to a considerable measure he has succeeded, but, on the other hand, he has in some respects failed.

* *Medico-Chirurg. Trans.*, 1900.

The first sixteen pages are devoted to a brief clinical study of the anatomical and physiological properties, functions and relations of the part, the relative lightness of which only strikes one on account of the depth to which a confrère of Dr. Escat's has plunged.

The following chapter is devoted to a very clear exposition of the modes of examining the parts, with some excellent drawings of the posterior rhinoscopic views. After this the pathological states are discussed in detail, with the treatment advocated by the author.

The acute conditions occupy 140 pages, chronic about the same, and specific diseases with neoplasms the remainder of the work.

Of the book as a whole, one cannot but be struck by the amount of clinical matter collected, and the admirable way in which the author has treated it; nor is one the less impressed with Dr. Escat's skill as a draughtsman, the whole of the illustrations being from his pen, and they possess the additional advantage of being entirely original; for example, the drawings of post-nasal adenoids, as seen by the mirror, are the best that it has been our fortune to see.

The author has omitted some of the latest transatlantic views which one would have thought worthy of mention, as an example of which one may quote those relative to the importance of granular pharyngitis as a sign of nasal obstruction, or what has been termed nasal insufficiency.

The author's views on anæsthesia in adenoid operations, and the conduct of the operation in general, will be read with interest. The language is very clear, and there is much less ambiguity than one finds in many medical writings. The moderate price of the book will place it within the reach of all, and those who invest in it will find themselves well repaid.

R. L.

Atlas der Nasenkrankheiten. Enthaltend 356 Figuren. In 475 Einzelbildern. Auf 38 Tafeln. Nachdernatur gemalt und erläutert Von Hofrath Dr. ROBERT KREIG, Arzt in Stuttgart. In seven parts, 6 marks each. With German and English text. Ferdinand Enke, Stuttgart: and F. Bauermeister, 49, Gordon Street, Glasgow. (Atlas of Nasal Diseases.)

Dr. Robert Krieg, already well known to us as a skilful delineator of the pathological conditions of the larynx both by pen and brush, now gives to the profession the first parts of an atlas that promises to be the finest illustrated work that has appeared, as far as I am aware, up to the present, and will at the same time render any competition difficult and improbable. Plate 1 deals with dermoids of the nose, and Plate 2 with congenital fistula and a fistula due to a ruptured cyst. The third shows the normal, minor deviations from the normal and atresia choanæ; the fourth, deviations of the septum and bulliform deviations; the next, crests and spurs; the next, the same; the seventh, angular deviations and deflections; the eighth, eczema of the anterior nares; the ninth, eczema, folliculitis, verruca dura, papillomata, rhinolith, and a tooth growing into the nose; and the tenth, fractures and dislocations.

The translation at times leaves something to be desired, and, if it is possible, the author would be well advised to obtain the assistance of an English medical man well versed in the terminology of rhinology. One would be a little astonished to hear a septal deflection termed "vesicular," for instance. Naturally, one finds at times the trans-

lation departing from the German text, as "Lästige Drück in der rechten Nasenflügelgegend" is rendered "troublesome feeling of oppression in the region of the right ala nasi"; the more literal translation being, "troublesome compression" ("obstruction," a little more free, is still better), etc. After Plate 3 there is a most useful and instructive series of diagrammatic representations of the various forms taken by the nasal septum, and, as the author states, they aid materially in demonstrating the ways they originate.

This atlas will be of the greatest assistance to all engaged in the practice, study, and teaching of rhinology, and will not be without value as a means of adding to one's knowledge of German. *R. L.*

Le Pharynx : Anatomie et Physiologie. Avec 165 figures intercalées dans le texte. Preface par M. le Dr. Polaillon. Par Dr. C. CHAUCHEAU. 404 pp., tome 1. J. B. Baillière et Fils, 19, Rue Hauteville, Paris, 1901.

This, the first number of the series of five that Dr. Chauveau promises us on the pharynx, fills one with envy for the energy, knowledge and close study that it discloses. This volume treats of the following: The Historical; Comparative Anatomy of the Vertebrates; The Developmental (Fœtus and Child); Morphological and Structural Description of the Adult Pharynx.

These subdivisions are followed both in the anatomical and physiological parts of this volume. The various plates which are generously scattered through the work are sufficiently diagrammatic to be extremely clear, and assist materially in following the author in the text.

It is difficult to select to consider in detail any one part of a work of this magnitude, but if one takes the still debated question of the closure of the glottis during deglutition, one is struck by the careful and conscientious manner with which this, as, indeed, is common to the work in general, is treated; the author has begun at the very beginning; not content with giving to his readers the modern views, he quotes and analyzes in detail those of the ancients, following them up in sequence, and passing on step by step to the present time. The theories of all exponents are given with an impartiality that is above praise. That the author should have fallen in line with the generally accepted view that the epiglottis acts as a veritable cover to the larynx is not to be wondered at, and still less to be found fault with. The absence of the epiglottis due to the ravages of syphilis, when removed for disease, and when removed as it has been unintentionally (when attempting to cut off a hypertrophied lingual tonsil with a straight guillotine), are arguments that might have attracted more attention, so is the fact that in introducing an instrument into the larynx no one has ever had to complain that the epiglottis gave any trouble by closing down, though this is naturally not in reality an argument of much force, as the effort of deglutition is absent; yet the whole not being before one, it is possible that these points even receive due explanation later.

Judging by this foretaste, one can, with a large degree of certainty, predict that the rest of the work will be of an equally high standard, and that it will stand alone as the reference work on the subject.

R. L.

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ATRESIA AURIS CONGENITA.

ILLUSTRATED BY THREE CASES (TWO FROM THE CLINIC OF DR. ST. CLAIR THOMSON).

BY HUNTER TOD, M.B. CANTAB., F.R.C.S. ENG.,

Late Senior Resident Medical Officer at the Throat Hospital, Golden Square,
London.

THE literature on this subject is so abundant and complete, thanks chiefly to our German *confrères* (Bezold, Joel, Meyer, Schwartz, Stetter, Ruedi, Landauer), and Vali, Gradenigo, and others, that one begins to doubt if this deformity is so rare as has been hitherto supposed. Lately I have had the opportunity of examining three such cases, and, although they do not differ from many hitherto published, yet this paper may perhaps be excused on the ground that in perusing the literature I have been able to collect as many as 114 cases. Unfortunately, many are merely cited without further description, but the number is sufficiently large to enable one to draw from them a fairly accurate clinical picture.

I have only quite recently had the opportunity of reading Ruedi's thesis on this subject (fifty-seven cases); and as we have taken many of the cases we cite from the same sources, I have, to save repetition, only appended those which do not appear in his thesis, *i.e.*, fifty-seven other cases.¹

¹ Thomas Ruedi, Inaugural Dissertation, Basel, 1899: "Microtie mit Atresia Auris Congenita."

AUTHOR'S THREE CASES.

The following three cases, two of which are bilateral, are good illustrations of atresia auris congenita. They are similar in that they possess no other deformity and that the labyrinth is not affected.

After their description, I have ventured to give a *résumé* of the main points in connection with this deformity which I have been able to gather from perusing the literature at my disposal.

The first of my cases is that of a man of exceptional intelligence, whose hearing-power I could accurately test. He affords evidence of the fact that operative treatment is useless, no matter how favourable the conditions may appear; and also that the hearing-power in some of these cases may be surprisingly good.

CASE I. (*under Dr. St.Clair Thomson*).—E. H——, twenty-nine years. His previous history is recorded by Mr. Field (whom I have to thank for permitting me to make use of this abstract).¹

In 1883 Field operated on both sides, hoping to produce an artificial external meatus. Before the operation the voice could be heard if loud, the tuning-fork perfectly; and there was no difference if mouth was open or shut.

In describing the operation, Mr. Field says: "I began by dissecting the posterior portion of the auricle, an assistant drawing the ear forward. I found a small aperture in the bone, into which I could pass a good-sized probe. I carefully made an opening, and fixed in a silver speculum, which I had made for the purpose, fastened with plaster, so that it could not move out of place. I operated in the same way on the other ear, and in three days' time the ears had completely healed, and a good opening was left on both sides through which, when the dressings were removed, the boy could hear remarkably well; in fact, sometimes, when there was no pus in the aperture, he could hear a whisper. The difficulty was to keep the parts open. I thought of skin-grafting, but it was impossible to cover the whole canal in this way. At length the granulations increased, and although the openings remained for some time, they slowly closed, and I was obliged to abandon any hope of keeping the ears from closing up again."

Since then E. H—— has had no further aural treatment, but during the past two years several minor operations on the nose for nasal obstruction. For the same period he has suffered considerably from tinnitus, at first intermittent, now constant. Paracusis

¹ Field, "Diseases of the Ear" (London).



PHOTO I., CASE I. RIGHT AURICLE.



PHOTO II., CASE I.—LEFT AURICLE.

PLATE I.—TO ILLUSTRATE DR. HUNTER TOD'S PAPER ON
ATRESIA AURIS CONGENITA.

[To face p. 106, Vol. xvi.]

Willisii is also well marked—so much so that when travelling in a railway-carriage he often overhears the whispered conversation of others, which no one else can hear, and has unintentionally joined in the conversation, much to everyone's discomfort. He also makes the voluntary statement that he hears much better when standing opposite the speaker, especially if he has his mouth open. The use of an audophone greatly improved his hearing.

E. H.— at present is an accountant, his chief complaint being that the tinnitus prevents him thinking, and is especially worrying when he has to deal with large figures. His deafness has been about the same as long as he can remember. Apart from his ears he has no other deformity, nor have his relatives.

On both sides the auricles are markedly deformed and smaller than normal, but by no means rudimentary; and there is complete occlusion of the meatus.

On the right side (Photo I.) the helix is inrolled, and at the site of Darwin's tubercle is fused to the antihelix. The tragus and antitragus are fused; the lobule is adherent to the skin and is turned forward. The concha is convex, and the whole cartilaginous portion of the auricle feels thin and rudimentary.

Between the tragus and antitragus, at the site of the external meatus, is a small perforation leading through to the back of the ear; this and scars, one extending from the perforation downwards, and another along the posterior border of the auricle, bear evidence of former operative treatment.

On the left side (Photo II.) the condition is very similar, only the ear lies more obliquely, and the tragus and antitragus are more prominent. By pressure between them one can feel a depression which suggests the position of the external meatus.

On each auricle, on the right side almost at the anterior superior margin of the helix, and on the left situated somewhat lower down, is a small dimple, suggestive of a fistula auriculæ congenita (to be distinguished from the ordinary fistula auris congenita).

The nasal obstruction, due to a small spur and enlargement of the posterior ends of the inferior turbinates, was removed by operation, but in no way benefited the hearing.

By posterior rhinoscopy the orifices of the Eustachian tubes appeared normal, and there were no adenoids. The palate moved normally on deglutition and phonation.

TESTS FOR HEARING.

Voice (patient's eyes shut):

	R.	L.
1. Distinguishes sound	20 feet +	20 feet +
2. Simple sentences:		
(a) Side face	1½ to 2 feet	4 feet
(b) Front face (mouth open)—3 feet		
(c) „ (mouth shut)—2 feet		
3. Words:		
(a) Side face	6 to 8 inches	2 feet
(b) Front face (mouth open)—3 feet		
(c) „ (mouth shut)—1½ feet		

Ordinary conversation could be sustained at a distance of 10 feet if the patient made use of "lip-reading."

4. Whispering: Voice heard close to ear, but not understood.

Watch: Only on contact. Heard best at root of nose (glabella) and just behind auricles.

Tuning-forks:

	Schwabach's Test.		Air Conduction.		Rinné's Test.	
	R.	L.	R.	L.	R.	L.
C	+12"	+16"	Not heard		—	—
C ₁	+22"	+28"	-60"	-65	-40	-45
C ₂	+8"	+6"	-20"	-12	-15	-10
C ₃	± ?	± ?	-20"	-15	-15	-11
C ₄	—	—	-15"	-25	+8 ?	+8 ?
G ₄	—	—	-6	-6	± ?	+3 ?

On passing the Eustachian catheter and inflating with air, one could hear, on holding one's ear next to the patient's, a hissing sound as if air were entering the (?) cavum tympani. The sound appeared to be quite superficial, and was better heard on the left side.

The air inflation relieved temporarily the feeling of fulness in the ears, but otherwise did not benefit.

Bougies could be passed, on each side, nearly 2 inches beyond the catheter, and were felt as if they were "sticking out of the ear."

Summary.—Congenital bilateral aural deformity, with total atresia of both meatus. Careful operation, under favourable conditions, twelve years previously, unsuccessful. Hearing sufficiently good to carry on conversation and daily occupation. Tuning-forks: (1) by air conduction not heard below C₁, but in upper half of the scale well and without intermission; (2) marked increase of bone conduction for lower tones. No other deformity. Eustachian tubes patent. Bougies can be passed nearly 2 inches. No paralysis of palate. Hears better with mouth open. Chief complaint is tinnitus. Paracusis Willisii well marked.

CASE II.—D. S.—, girl, five years. One of a large family; all healthy and in no way deformed. The child's intelligence is



PHOTO III., CASE II.—RIGHT AURICLE.



PHOTO IV., CASE II.—LEFT AURICLE.

somewhat deficient, but may only be due to the fact that she has never learnt to speak; only mumbles indistinctly. She was operated on, eighteen months ago, on both sides. The left side was unsuccessful, but on the right side the parents affirm that the hearing was somewhat improved. From the operation report one can learn very little, except that a small opening was found on each side in the bone, at a position much lower down than was expected, and that the attempt made to keep the canal open failed.

The auricles were small and considerably deformed. The left side was rudimentary, and took the usual form of a longitudinal puckered-up ridge; there was much scarring from the previous operation. On the right side the auricle was fairly well developed. At the site of the external meatus was a small opening filled with ceruminous crusts, on removal of which a probe could be inserted, but ended blindly in a cul-de-sac. The mastoid regions felt normal. (See Photos III. and IV.)

The tests for hearing could not be satisfactorily carried out; but apparently the watch was heard on contact, as were the tuning-forks.

The voice could be heard if one spoke loudly about 3 feet behind the child's back. The higher tuning-forks also seemed to be heard through the air, but the answers were often contradictory.

Summary.—Child, aged five years. Deaf-mute. Operation unsuccessful. Tuning-forks and watch heard by bone conduction; voice and higher tuning-forks by air. No other deformity.

CASE III. (*under Dr. St. Clair Thomson*).—F. H——, healthy, bright girl, seven years. Brought to hospital with complaint that she had had several attacks of deafness following a cold in the head; that she snored at night, and usually kept her mouth open.

On examination, at first sight the auricles appeared normal. Closer examination showed the left auricle to be somewhat shorter, broader, and flatter than on the right side, the lobules being on the same level, but the helix of the left side at a lower one than on the right.

On the *left side* the external meatus quickly ended in a cul-de-sac, at the bottom of which was a fine opening suggesting permeability, but which on probing was found to end blindly after 1 millimetre.

The cartilaginous meatus, as well as the mastoid region, felt normal. There was no other deformity.

Parents and other relatives normal. Adenoid vegetations diagnosed and removed. Later "politizerized." Marked improvement in hearing.

Mother stated that there never had been any discharge from the ears, and that the left side had been closed since birth.

The right membrana tympani was retracted, but otherwise normal. A hissing sound as though air was entering the cavum tympani could be heard in both ears on "politzerizing." The uvula and palate moved normally on deglutition, phonation, and stimulation.

TESTS FOR HEARING.

			<i>L.</i>	<i>R.</i>
Watch	...	...	Firm contact only over mastoid; <i>not</i> over auricle.	6 inches
Weber	...	...	Markedly to left side.	
Rinne, C_2	...	...	- 35 seconds	
Schwabach, C_2	...	...	+ 15	Normal
<i>Air Conduction:</i>				
Voice: (1) Whisper		...	3 inches	Normal
(2) Ordinary conversation		...	10 to 12 inches	Normal
<i>Tuning-forks:</i> Below C_2 not heard on left side; the higher tuning-forks gave indefinite result owing to right ear being normal.				

Summary.—On left side atresia auris congenita, with very slight aural deformity. Brought to hospital not on account of deformity, but from symptoms arising from the presence of adenoids. Marked improvement of hearing after removal of adenoids (Dr. Thomson), but unfortunately state of hearing before operation not tested. Hearing-tests on affected side showed bone conduction to be markedly increased, and air conduction below C_2 to be absent.

Taking into consideration with these cases those which have already been published, the following are the main points in connection with this deformity:

Auricular deformity almost invariably accompanies total occlusion of the external meatus. The deformity varies exceedingly. The auricle may be entirely absent (Gradenigo¹ five cases, Binnie,² Cantlie³): it may be merely represented by a fold of skin (Corton,⁴ Stiles⁵); by a row of cartilaginous tags (Randall,⁶ Schwartze⁷); or by an auricle varying in its deformity to such an extent that in the one case the auricle can hardly be recognised as such, and in the other the deformity is so slight that only careful observation detects it (Case III.).

¹ *Arch. f. Ohr.*, xxxiv. 281.

² *Annal. of Surg.*, Philad., xxiv. 201.

³ *Brit. Med. Jour.*, 1891, i. 1223.

⁴ *New York Med. Times*, 1886.

⁵ *Trans. Med.-Chir. Soc. Edin.*, 1898, xv.

⁶ *Intern. Clinic.*, Philad., iii. 328.

⁷ *Path. Anat. d. Ohr.; Lehrbuch der Chir. Krankheit. d. Ohr.*

Finally, the auricle may be quite normal (Jacobson,¹ Wolff,² Bonnafont,³ Rutten,⁴ and Gordon⁵).

In over 50 per cent. the auricle is described as "rudimentary," in 40 per cent. as being "deformed."

The deformity is more or less consistent, in spite of its varying degree. In slighter cases the auricle appears turned forward, and the helix may be fused to the tragus, with or without there being actual atresia of the external meatus (Stetter⁶). In the more severe cases the auricle appears crumpled up, and takes the position of a longitudinal ridge.

The consistency of the deformity can only be explained (Gradenigo⁷) by referring the cause to arrest of development.

His states that at the end of the second month of embryonic life the ear can be recognised in detail. In the third month its upper posterior part projects from the skull and turns forward on to the face, where it remains two to three weeks, and then returns to its former position, thus setting free the antihelix. If the ear remains in the "turned-forward" position, development is arrested. Vali⁸ agrees that this may be so in cases where there is also mal-development of the external and middle ear; but in cases where only the auricle is deformed he is inclined to agree with Moos⁹ that it may be due to external causes, as pressure of the umbilical cord occurring later in embryonic life.

As is well known, *fistula auris congenita* occurs in ears otherwise normal. In cases of atresia with auricular deformity these fistulae are remarkably rare. I can only find four such cases, described by Bückner,¹⁰ Vali,¹¹ Grunert,¹² and Doran.¹³ As emphasized by Grunert, these fistulae should not be confused with fistulae auriculæ congenitæ (compare Case I.).

That these fistulae occur so rarely in cases of atresia and so much more frequently in normal auricles is surely in itself suggestive that they are probably due to incomplete development in the tissue round the first branchial cleft, from which the auricle is derived, and not connected developmentally with the branchial cleft itself, which later on is represented by the external and middle ear and the Eustachian tube.

Auricular appendages in association with atresia auris congenita are nearly as rare as the fistula. In seven cases which I have

¹ *Arch. f. Ohr.*, xix. 34.

² *Ibid.*, xxxv. 131.

³ *Annal. de la Chir. franç.*, 1843, viii.

⁴ *Rev. de Laryng.*, 1893, xiii. 615.

⁵ *Brit. Med. Jour.*, 1888, i. 812.

⁶ *Arch. f. Ohr.*, xxi. 92.

⁷ *Ibid.*, xxxiv. 281.

⁸ *Ibid.*, xxxiii. 28.

⁹ *Zeit. f. Ohr.*, xi. 267.

¹⁰ *Arch. f. Ohr.*, xxii. 200.

¹¹ *Arch. f. Ohr.*, xxxiii. 28.

¹² *Arch. f. Ohr.*, xlv. 10.

¹³ *Trans. Obstet. Soc. Lond.*, xxxiii. 199.

collected the appendages were found in four cases on both sides, although in three cases the atresia was only present on one side, showing the close relationship of these appendages to the other aural deformities.

In Cantlie's¹ case, where on the right side there was total absence of the auricle and external meatus (the skin over the region of the external meatus being quite smooth), accompanied by further deformity of the face, an auricular appendage was situated $1\frac{1}{2}$ inches in front of, and 1 inch below the tip of the mastoid process; on the left side, where the auricle and external meatus were normal, two appendages were found identical in position and appearance to that on the right side.

In Walker Downie's² case the left auricle was rudimentary and there was no sign of the external meatus, and on the right side, in front of the otherwise normal auricle and meatus, was a "blurred image" in miniature of an auricle, springing from the tragus, with the helix directed forwards. "This supernumerary auricle seemed to consist of what might be described as a reflection."

Other deformities may accompany congenital atresia of the external meatus, and are explainable by the arrest or maldevelopment of the structures in connection with the first and second branchial bars.

The most common deformity is asymmetry of the face, due to the affected side being smaller, and often paralyzed (ten cases).

In several cases where a post-mortem could be obtained the zygomatic process was found to be absent (W. Downie³). This is of interest in that some authors consider the zygomatic process to be the homologue of the "quadrate bone" of the lower vertebrates, which unites the lower jaw to the basis cranii and periotic capsule.

Other deformities cited are: absence of the mastoid process, sacro-coccygeal fistula, deformity of mouth, fistula in cheek, asymmetry of the palate, and obstruction of the choanæ.

The hearing-power in these cases is of more practical interest, and questions may be asked as to what is to be expected from these patients, and also if their condition can be improved by operative or other treatment.

Ruedi gives a table of twelve collected cases where the hearing-power was more or less carefully tested. In addition to these cases, I find twenty-three where mention is made of the hearing, and in fourteen of these (including two of my cases) the actual state is given.

¹ *Brit. Med. Journ.*, 1891, i. 1223.

² *Practitioner*, London, lvi. 261.

³ *Ibid.*

From these cases we learn that there is very rarely complete deafness. Moos describes three cases as "deaf-mute," and Doran one case as being "stone-deaf." Several cases are said "to hear sufficiently well to understand." In the cases where actual tests have been made, the hearing-power appears to vary, as regards air-conduction, to a very great extent, and to have no apparent relationship with the deformity. The extreme cases may be taken as exceptional.

For instance, Binnie¹ quotes a man in whom the hearing, even when the normal ear was stopped, seemed to be perfect even for conversation carried on in low tone, in spite of having "no auricle and external meatus on the right side, the surface of the head in the ear region being marked as if a hot flat-iron had been passed over it. This had often been tested by his friends."

And Robb² relates a case where, although on neither side trace of the meatus could be found, whispering could be heard 6 feet, and loud conversation up to 15 feet.

On the other hand, in Bonnafont's³ well-known case, where there was only a membranous septum in the external meatus, the watch could not be heard on contact before operation, although over 1 metre afterwards.

As a rule, the watch is heard on contact or to a distance of a few centimetres. "Whispering" may or may not be heard, but ordinary conversation to a distance up to 1 to 2 feet, rarely so well as in Case I. (4 feet). If the patient has learnt lip-reading, he may appear to hear very much better than he really does.

The bone conduction is markedly increased in the lower half of the scale, but the air conduction is so diminished that below C₁ the tuning-fork is no longer heard. As the scale ascends the air conduction improves, and there is usually no break in the tone sequence.

This condition, as Bezold⁴ pointed out, being the same as occurs in cases of middle-ear disease without accompanying labyrinthine disease, in these cases of congenital atresia shows that the labyrinth (as one would expect, seeing that its development is quite independent from that of the external and middle ears) is probably normal.

In several cases, as in Case I., the hearing-power was found to be increased if the mouth was kept open, this presumably being due to the conduction of the sound to the cavum tympani by the Eustachian tube.

In Mussey's case, quoted by Meyer,⁵ where there was no com-

¹ *Annal. Surg.*, Philad., xxiv. 201.

² *Ref.*, *Arch. f. Ohr.*, xviii. 220.

³ *Annal. de la Chir. franç.*, 1843, viii.

⁴ *Zeit. f. Ohr.*, xxvi. 11.

⁵ *Langenbeck's Arch. Klin. Chir.*, xxix. 488.

munication between the Eustachian tube and the cavum tympani, there was no difference in the hearing-power whether the mouth was kept open or shut. Politzer¹ considers that paralysis of the palate in these cases points to obstruction and maldevelopment of the Eustachian tube.

In other cases the hearing was much improved by the use of ear-tubes (Vali²) and by the audophone (Knapp,³ and Case I.).

Is operative interference justifiable in these cases? The answer is an emphatic No. Schwartz⁴ expressed this opinion in 1885; Joel in 1888 confirmed it by his pathological and clinical observations, and said that such cases should be for the surgeon cases of *noli me tangere*. Repeated attempts, however, have been made to make an artificial external meatus, in the hope of improving the hearing, but the results have been failures.

From a study of embryology, we learn that the external and middle ear and the Eustachian tube are derived from the cleft between the first and second branchial arches, from whose cartilaginous bars the ossicles are developed. When the maldevelopment of the branchial arches is so great that the cleft between them (at least, the outer half) ceases to exist, surely it is too much to expect the ossicles to be normal, even if they exist, to say nothing of the fenestræ ovalis and rotunda and of the membrana tympani.

The papers by Bezold⁵ and Joel,⁶ which give a record of sixteen cases examined post-mortem, together with five more cases quoted by Ruedi, confirm what the embryologists suggest. In no case was the middle ear found to be normal. In two cases the cavum tympani was absent, and in fifteen deformed and much smaller than normal; in no case could a membrana tympani be found. The ossicles were either rudimentary, ankylosed or absent. In only one case (Kiesselbach⁷) were both fenestræ mentioned as being normal; in that case the stapes was absent (probably lost during the dissection), so that one cannot tell if the stapes was fixed during life by firm connective tissue or was normally movable.

In all the other cases either one or both fenestræ, when mentioned, were abnormal or absent, or else the stapes was firmly fixed by connective tissue or by bone in the foramen ovale.

Only in Lucae's⁸ oft-quoted case was the labyrinth found to be markedly defective, and in this case, during life, there was absolute deafness to voice and tuning-forks on the affected side.

But supposing for the moment that the labyrinth is found

¹ *Lehrbuch*, 700.

² *Arch. f. Ohr.*, xxxiii. 28.

³ *Zeit. f. Ohr.*, xi.

⁴ *Chir. Krankheit. d. Ohr.*, s. 80.

⁵ *Zeit. f. Ohr.*, xxvi. 11.

⁶ *Ibid.*, xviii. 278, 1888.

⁷ Gerlach's "Beiträge zur Morphologie," i., 1883.

⁸ *Virch. Arch.*, xxix.

clinically to be functionally normal, that according to the various hearing-tests only an external and middle-ear obstruction exists, what success could be expected, however slight, from an operation? Those who have read Schwartz's¹ papers on "Acquired Atresia and Stricture of the Meatus, and its Treatment," cannot help appreciating the difficulty of keeping open the artificial meatus after operation in these cases. The tendency for the meatus to gradually close, and for complete atresia to recur, is so great that only the most careful and prolonged after-treatment can insure success. And how much more difficult are the cases of congenital atresia! Not only the cartilaginous but the bony meatus as well is completely obliterated. What hope is there, even if one could form a canal, of keeping it open?

And granted for a moment that an artificial canal could be obtained, what is the state of the *cavum tympani*? Ossicles at best rudimentary—at any rate useless, as there exists no *membrana tympani*. The stapes probably fixed in the foramen ovale by connective tissue or bony ankylosis, or perhaps the foramen may be absent.

In twenty-one (nine bilateral) collected cases where operation was attempted, success was only obtained by Bonnafont; but here the conditions were more favourable, the atresia being due, not to a bony, but a membranous, septum in the external meatus.

Meyer² in one case laid bare a membrane, which he thought might be the *membrana tympani*, and the hearing was said to be improved whilst the opening could be kept open.

Knapp³ cites a case where the atresia was due to soft tissue, and not to bony obstruction, and where a silver tube 3 centimetres long could be inserted into the opening; but owing to occurrence of hæmophilia suppuration occurred and the wound closed.

Bremer⁴ also quotes two cases where Meier attempted to make an artificial opening by puncturing the depression where the supposed external meatus was situated, and then dilating with trocar or laminaria. In one case the opening remained three months, and hearing was said to be improved meanwhile.

Results of Operation.—Briefly stated, from these cases we learn that—

1. The operation has never met with permanent success (Bonnafont's case excepted).

2. In all the other cases the atresia was due to bony obstruction, with the exception of Knapp's case.

¹ *Arch. f. Ohr.*, xlvii. and xlviii.

² *Langenbeck's Arch. Klin. Chir.*, xxix. 488.

³ *Arch. f. Otol.*, New York, xi.

⁴ *Arch. f. Ohr.*, xiii. 276.

3. In five cases there was no trace of the external meatus, although dipping in of the skin at the situation of the external meatus suggested it.

4. In nine cases either a depression of bone or fissure was present, suggesting a canal.

5. In several cases hearing was said to be better whilst the opening existed; but the opening invariably closed, and the final result was nil.

The method of operation formerly carried out consisted, as in Meier's¹ cases, in puncturing the skin at the point where a depression suggested the external meatus, and then dilating and attempting to keep open the canal by means of the cauteries or tubes.

The more recent method, advocated by Kiesselbach² and Vali,³ is to cut down on to the bone at the site of the depression, or make an incision behind the ear and turn it forward, and then seek for the fissure in the bone, which, if existent, will probably be found lower down than one would expect.⁴ If there be a fissure, it is carefully enlarged by chiselling away the surrounding bone, a probe being inserted into the opening. In this way one hopes to reach the middle ear and obtain an artificial external meatus.

Assuming, then, that operative treatment is recognised as useless, *can anything be done for these cases?* Unfortunately, very little.

In Case III., for example, removal of the adenoid growths caused considerable improvement in the hearing, but presumably because the atresia was only unilateral. Still, we have seen that in some cases the hearing-power is increased if the mouth be kept open, due to the conduction of the sound by the Eustachian tube; and so probably any pathological condition, such as adenoids, post-nasal catarrh, etc., which could in any way, either directly by pressure or indirectly by setting up a tubal catarrh, bring about obstruction of the Eustachian tubes, would probably help to further diminish the hearing-power. Therefore, in order to give the patient every chance, these cases should be most carefully examined in early childhood, and adenoids, if present, should be removed, and treatment especially directed to obtain a normal post-nasal space.

As in these cases the labyrinth is rarely affected, and the hearing-power is present, no matter how slight it may be, it is only right to insist that everything possible should be done in the way of oral instruction and lip-reading, and as early as possible, to prevent the patient remaining a deaf-mute.

¹ *Arch. f. Ohr.*, xiii. 276.

² *Ibid.*, xix.

³ *Ibid.*, xxxiii.

⁴ Welcker, *Arch. f. Ohr.*, Bd. i.

In several cases quoted the hearing was remarkably good and the speech was normal: in others the speech was thick and nasal, whilst some were stated to be deaf-mutes. Lastly, owing to the bony conduction being so good, much benefit was obtained in some cases by the use of the audophone.

The ætiology of this condition is obscure. Many theories are advanced, but which is correct? Certainly the deformity is not hereditary. I can find no published case where any near or distant relatives were similarly affected. The female sex seems to preponderate slightly—55 per cent. to 45 per cent. males.

Hitherto the right side has been considered to be almost invariably the one affected, but it is not so. Out of 95 cases, the right side was affected 38 times, the left 23, and both sides 34 times.

Syphilis, to which so much is traced, is considered by some to be the primary cause of this deformity. It may be so, but in no case is there any history given of any other sign of inherited syphilis; and more often than not the parents and their other children are stated to be healthy.

“Maternal impressions” need not be taken seriously. Is there any woman alive who is not firmly convinced that the congenital deformity which her child may be suffering from was due to some maternal impression?

The umbilical cord also has been accused of bringing about this deformity, and Moos¹ quotes two cases (both deaf-mutes, with atresia and aural deformity) where the cord was in each case said to be wound round the head.

Kiesselbach² believes that, if arrest of development of the auricle could be due to pressure of the umbilical cord, the occlusion of the meatus might also occur, owing to the position of the membrana tympani in the embryo being almost horizontal, and thus permitting of adherence of the walls of the meatus. This view might be supported by a specimen of Stiles's,³ where the external auditory canal was obliterated in consequence of the tympani plate being flattened up against the squamo-zygomatic element of the temporal bone.

Virchow⁴ considers congenital anomalies of the ear and its immediate neighbourhood to be due to early disturbance in the closure of the first branchial cleft, but not so much a simple developmental defect as an irritative inflammatory process, which may give rise to induration, adhesions, and scar retraction.

¹ *Zeit. f. Ohr.*, xi.

² *Ibid.*, xxvi.

³ *Monthly Journ. of Med. Sci.*, Edinburgh, vii. ⁴ *Archiv.*, Bd. xxx., xxxii.

But if this be so, the process must be an exceedingly early one, as, according to Kolliker, the cartilaginous framework of the ossicles is complete at the end of the second month, whilst the first branchial cleft closes during the fifth week of intra-uterine life.

Joel¹ also points out the striking analogy between the pathological conditions found in the cavum tympani of these cases of congenital atresia and those of otitis media chronica suppurativa et adhesiva.

If the cause be due to an early irritative or inflammatory process, it is a remarkable fact that in after-life one never sees any recurrence of these inflammatory processes. No case has hitherto been published where a patient suffering from congenital atresia has also had the signs or symptoms of an inflammatory trouble in the middle ear or the mastoid process. Why is this? Does this mean that the ordinary road for infection is via the patent external meatus, and not from the Eustachian tube, as usually supposed, or is it only due to the altered conditions of the mucous membrane and tissues of the middle ear?

CONCLUSIONS.

One may sum up the condition extremely tersely :

1. The deformity is not hereditary, and the cause is not known.
2. It occurs rather more often in females, and is more often unilateral than bilateral.
3. One may get accompanying deformities, chiefly due to mal-development of the parts in connection with the first and second branchial arches.
4. The labyrinth is rarely affected. The hearing varies, but is present to some extent, though slight. Hearing-tests give practically the same results as those in an uncomplicated middle-ear affection, but more marked.
5. Embryological, pathological, and clinical observations prove operation to be useless.
6. Something more, perhaps, can be done by careful non-operative treatment and by early and assiduous instruction in speaking and lip-reading.

In conclusion, I beg to thank Dr. StClair Thomson most gratefully for having permitted me to make use of Cases I. and III., which came from his clinic, and also for his kindly suggestions and valuable assistance.

¹ *Zeit. f. Ohr.*, xviii.

ABBREVIATIONS USED IN TABLES.—*M*, male; *F*, female; *R*, right; *L*, left; *B*, bilateral; *U*, unilateral.

TABLE I.
OPERATIONS—21 CASES (9 BILATERAL).

No.	Case.	Reference.	Operation.	Result.	Remarks.
1	Bilateral.	Randall, <i>Intern. Clinics</i> , Phil., 1896, iii.	Bilateral exploratory incision in front of auricle. Right side, no canal. Left side, partial external meatus, but deeper parts impermeable.	Failure.	Second operation attempted later; also unsuccessful.
2	8 weeks.	Bishop, <i>Intern. Med. Cong.</i> , Berlin, 1890, iv.	Incision at eulde-sac, where external meatus thought to be. Only a depression in bone.	Operation abandoned.	
3	5½ years. Bilateral.	Welcker (Blasius), <i>Arch. f. Ohr.</i> , 1864, i.	Incision behind ear, and auricle turned forwards. No canal found.	Operation abandoned.	
4	F., 7 years. Bilateral.	Bezold (Rother), <i>Zeit. f. Ohr.</i> , xxvi.	Exploratory incision. Articular process of inferior maxilla seen. No canal.	Operation abandoned.	
5	Bilateral.	Vali, <i>Arch. f. Ohr.</i> , xxxiii.	Incision behind auricle, which was pulled forward. No sign of external meatus. Bone very hard.	Operation abandoned.	
6	(?)	Hedinger, <i>Arch. f. Ohr.</i> , xiii. 305.	Exploratory incision. No external meatus found.	Operation abandoned.	
7	7 years. Bilateral.	Skumlanski, <i>Gazetta lekarska</i> , 1895, i.	Exploratory incision where dipping in of skin pointed to a meatus.	Failure.	? Heard better whilst opening remained; but afterwards tests for hearing proved complete deafness to speech and tuning-forks.
8	1½ years.	Grunert, <i>Arch. f. Ohr.</i> , xlv.	Operation to improve the ear deformity and explore for external meatus. Bone exposed. No canal found.	Operation abandoned.	Aural deformity considerably diminished as a result of the operation.
9	M., 30 years. Bilateral.	Knapp, <i>Zeit. f. Ohr.</i> , xi. 13.	Operation 13 yrs. previously, but failure.	Failure.	

TABLE I.—*continued.*

No.	Case.	Reference.	Operation.	Result.	Remarks.
10	F., 19 years. Bilateral.	Mazzoni (Grad- enigo), <i>Arch</i> <i>f. Otol.</i> , xxxiv. 281.	Incision at point of depression, corresponding to entrance of external meatus.	Final result nil.	Hearing said to be better whilst opening existed
11	} Quoted by Stetter, "The Congenital and Acquired Deformities of the Ear," Jena, 1898.		Operation at- tempted.	All failures.	
12					
13					
14	} Cases I. and II. (already described).				
15					
16	F., 15 years. Right side.	Meyer, <i>Langen- beck's Arch.</i> <i>Klin. Chir.</i> , xxix.	Bone exposed. Fissure found. A membrane like the mem- brana tympani laid bare.	Opening gradually closed.	Heard better so long as the opening kept open. Final re- sult, a failure.
17	F., 8 mths. Right side.	Kiesselbach, <i>Arch. f. Otol.</i> , xix. 227.	Incision behind ear. Fissure found. Bone carefully chis- elled away around it.	? Heard bet- ter, but at best only a few sounds. Previously completely deaf.	Mother took child from hospital 12 days after operation be- cause she was so satisfied.
18	Left ear.	Knapp, <i>Arch.</i> <i>f. Otol.</i> , New York. xi.	Obstruction due to soft tissue. Cul-de-sac of external meatus cut through. Silver tube. 3 cm. long, in- serted.	Hæmophilia. Suppura- tion. Wound closed. Result nil.	Knapp thinks that but for the bleeding, the operation might have been successful.
19	Left ear.	Meier (Bremer), <i>Arch. f. Otol.</i> , xiii. 276.	Depression be- hind ear pierced with needle, then with tro- car. Attempt to keep canal open by crucial in- cision and can- terizing with silver nitrate.	Failure.	? Improvement during the short period when the wound was open.
20	Right ear.	Meier (Bremer), <i>Arch. f. Otol.</i> , xiii. 276.	Small depression between rudi- mentary tragus and antitragus. Punctured. Di- lated with knife. Laminaria bou- gies.	Failure. Canal kept open three weeks, and then closed.	? Improvement during period when canal existed.
21	Left ear.	Bonnafont, <i>Annal. de la</i> <i>Chir. franç.</i> , viii.	Membranous sep- tum in external meatus opened by trocar, and kept open by canterizing.	Successful. Membrana tympani seen after operation.	Before operation, watch on con- tact; one month after, 1 metre +.

TABLE II.
ABSTRACT OF CASES COLLECTED.

No.	Reference.	Side.	Sex.	Age.	Auricle.	Other Deformities.	Hearing.	Remarks.
1	Randall, <i>Intern. Clinics</i> , Phil., iii. 328.	B.			Rudiment- ary. Longi- tudinal ridge. Total atresia.		Can hear suffi- ciently to understand ; better, if mouth be open.	Operation (Table I.).
2	Moure, <i>Mém. et Bull. Soc. de Méd. et Chir. de Bor- deaux</i> , 1886, 135.	R.	F.	12.	Rudi- mentary. Nearly complete absence. Total atresia.	Left ear normal. No other deformity.	Bone perception good. Tuning- fork, la ³ , better heard on right side and Rinné.	
3	Knapp, <i>Zeit. f. Ohrch.</i> , xi.	B.	M.	30.	Rudi- mentary. Crumpled- up, hook- like pro- tuber- ances. Dimpling, as if pre- sence of external meatus. Total atresia.	No other deformity.	Watch, on skull, $\frac{3}{4}$ ". General con- versation, 1 to 2 feet. Loud conversation, 5 to 6 feet. Music well heard. Audophone, hears better. No difference if mouth be open or shut.	Catheter, air enters middle ear freely (see Table I.).
4	Knapp, <i>Arch. f. Otology</i> , New York, xi.	L.	F.		Congenital closure of entire ex- ternal meatus by soft tissue.	No other deformity. Right side normal.	Bone conduction +. Weber to left. Voice, $\frac{1\frac{1}{2}}{5}$ " to $\frac{2}{5}$ " both sides.	Catheter, air heard in both ears (see Table I.).
5	Heaton, <i>Journ. of Laryng.</i> , vi. 149.	R.	F.	15.	Misshapen. Two super- numerary auricles in front and below auricle. Total atresia.	Small super- numerary auricle in front of left ear. Lower half right side of face smaller. Mouth to left. Right jaw ill-de- veloped.	Acoumeter : right, 13 cm. ; left, 14 feet. Tuning-fork : right, - 15" ; left, normal. Bone conduc- tion : right, + 10" ; left, normal.	Valsalva's experi- ment, air felt in left ear.
6	Meyer, <i>Langen- beck's Arch. Klin. Chir.</i> , xxix. 488.	B.	M.	13.	Rudi- mentary. Total atresia.	Nil.	Watch, 5 to 6 inches over- head. Contact only, if over ears. Best heard on con- tact with skull. Tuning-fork, best on skull. Not so well in ear region.	

TABLE II.—*continued.*

No.	Reference.	Side.	Sex.	Age.	Auricle.	Other Deformities.	Hearing.	Remarks.
7	Meyer, <i>Laugen- beck's</i> <i>Arch.</i> <i>Klin.</i> <i>Chir.</i> , xxix. 488	R.	F.	15.	Rudi- mentary. Total atresia.	Nil.	Tuning-fork heard best on affected side.	Operation (Table I.).
8	Massey (Meyer),				Rudi- mentary. Total atresia.	No commu- nication of Eustachian tube with cavum tympani. Presence of ost. pharyng. of tub. Eust.	Could hear well enough to work. No change on opening or shutting mouth.	
9	Robb, ref. <i>Arch. f.</i> <i>Ohren.</i> , xviii. 220.	B.			No trace of any ex- ternal meatus on either side. Auricles ?		Whispering, 6 feet. Loud conversation, 15 feet.	
10	Gradenigo, <i>Arch. f.</i> <i>Ohren.</i> , xxxiv. 282.	R.	M.	38.	Rudi- mentary. Longi- tudinal ridge. Small opening, 5 mm. long, above and in front of ridge.	Right lower jaw ill-de- veloped.	Air conduction : whispering, nil ; watch, nil. Watch better heard on right than on left mastoid process. Bone conduction : all tuning- forks heard. Lower tuning- forks (up to C ₂) not heard through air.	
11	Vali, <i>Arch. f.</i> <i>Ohren.</i> , xxiii. 28.	B.	M.	12.	Right : small, ill- developed. Small orifice, 3 mm. deep, at upper part (? = fist. auris congenita). Tragus & antitragus fused. Behind tragus dimpling, as if external meatus. Left : carti- lage felt.	Left side of palate thicker than right. Does not move on phonation or stimu- lation. Uvula asym- metrical. Left half better de- veloped.	Watch : right, 23 cm. ; left, 23 cm. Best on auricle. Con- versation : right, 1.3 m. ; left, 1.1 m. Whispering : behind ear, at back. Tuning- fork <i>a</i> : better over ears than at mastoid or vertex ; C ₁ , right, 54 cm. ; left, 48 cm. ; C ₂ , right, 69 cm. ; left, 52 cm. Galton, good. Rinné : right, + ; left, + (?). Hears	Operation (Table I.). On Polit- zering, air felt, but not heard in ears.

TABLE II.—*continued.*

No.	Reference.	Side.	Sex.	Age.	Auricle.	Other Deformities.	Hearing.	Remarks.
					Greatly thickened helix, markedly inrolled. Auricle rudimentary. Total atresia.		better (1) with mouth open, (2) with ear-tubes.	
12	Gordon, <i>Brit. Med. Journ.</i> , 1888, i. 812.	R.	M.	11.	? Normal. $\frac{1}{2}$ inch from auricle is complete atresia. Bony ring round meatus at the blind end.		Watch, $\frac{1}{60}$.	
13	Bonnafont, <i>Ann. de la Chir. franç.</i> , 1843, viii.	L.			Normal. Congenital membrane simulating membrana tympani.		Before operation: Watch, not even on contact. After operation: 1 m. +.	Operation (Table I.).
14	Rutten, <i>Rev. de Laryng.</i> , 1893, xiii. 613.	L.	M.	10.	Normal. Congenital membranous septum at junction of cartilage and bony meatus. Punctiform depression in centre.		Tuning-fork heard (on vertex) equally well on both sides.	
15	Blower, <i>Liverpool Med.-Chir. Journ.</i> , vii. 206.	L.		11.	? Normal. $\frac{3}{8}$ " long enl.-de-sac. Bone at blind end—stated definitely as being congenital.		Very deaf, especially in left ear.	Stenosis and chr. supp. ot. med. on right side.
16	Stiles, <i>Trans. Med.-Chir. Soc. Edin.</i> , 1895, xv. 54.	B.		6 mths.	Rudimentary, both sides. Small re-duplication of skin. Two small peduncular outgrowths	Right half of face smaller. Right jaw smaller. Chin to right side. Paresis right frontal and	Mother stated child could hear loud noises.	

TABLE II.—*continued.*

No.	Reference.	Side.	Sex.	Age.	Auricle.	Other Infirmities.	Hearing.	Remarks.
					in front of rudimentary auricle on left side.	orbicularis palpebra- rum muscles. Right cornea opaque.		
17	Bishop, <i>Intern. Med. Cong., Berlin, 1890, iv.</i>	U.	F.	8 wks.	Rudimen- tary. Ear doubled on itself. Total atresia of external meatus			Operation (Table I.).
18	Bishop.	U.		14 mths.	Rudi- mentary. Total atresia of external meatus.			
19	Skun- lanski, <i>Gazetta Iekarska, 1895, i.</i>	B.		7.	Both auri- cles rudi- mentary. Total atresia.		Complete deaf- ness to tuning- forks and speech.	Operation (Table I.).
20	Wagen- hauser, <i>Arch. f. Ohren., xxi. 269.</i>	L.		9 mths.	Narrow, crumpled- up cartila- ginous pro- tuberance. Total atresia.	Left aural region much flatter than the right side.		
21	Wagen- hauser, <i>Arch. f. Ohren., xix. 55.</i>	R.	F.	61.	Rudi- mentary. Total atresia.	Right side of face is com- pletely de- veloped.		
22	Gruber, <i>Bericht d. K. K. Allgem. Kranken- haus., Wien, 1870.</i>	B.		4 mths.	Left : upper part normal ; lower half ill-devel- oped and small. External meatus 1 cm. long. Right : same as left side : auricle more attached to head. External meatus 1 cm. long.	Choanae obstructed posteriorly. Sound only passes 3 cm. into nose. Right eye- lid fused. Jaws normal.		

TABLE II.—*continued.*

No.	Reference.	Side.	Sex.	Age.	Auricle.	Other Deformities.	Hearing.	Remarks.
23	Cantlie, <i>Brit. Med. Journ.</i> , 1891, i. 1223.	R.	M.	38.	Absence of auricle. Skin smooth over region of external meatus.	Bilateral super- numerary auricles both sides. Develop- mental deformity of right side of face.		
24	Binnie, <i>Ann. Surg., Phil.</i> , xxiv. 201.	B.			Left: rudi- mentary. Vertical row of tags. Right: not so rudi- mentary, but markedly ill-devel- oped. Total atresia.	Left jaw smaller; face oblique towards left.	Hears better if mouth is open.	Depression in bone on pal- pation. ? Ex- ternal meatus.
25	Binnie, <i>Ann. Surg., Phil.</i> , xxiv. 201.	R.	M.	Adult	No trace of auricle. "Surface of ear re- gion as if hot iron had been passed over it." Total atresia.	Nil.	"Hearing, even when normal ear stopped, seems to be per- fect." Convers- ation can be carried on in a low tone.	
26	Doran, <i>Trans. Obstet. Soc., Lond.</i> , xxxiii. 199.	R.			Rudi- mentary. Longi- tudinal pro- tuberance. Total atresia.	Left in anterior part of helix, almost on skin of temporal region. Fistulae auris con- genita. Cutan. sinus over sacro- coccyg. region.	Stone-deaf on right side.	
27	Kiessel- bach, ref. <i>Arch. f. Ohren.</i> , xxii. 105.	U.		25.	Markedly deformed. Total atresia. External meatus (?) represented by a slight depression.			

TABLE II.—*continued.*

<i>No.</i>	<i>Reference.</i>	<i>Side.</i>	<i>Sex.</i>	<i>Age.</i>	<i>Auricle.</i>	<i>Other Deformities.</i>	<i>Hearing.</i>	<i>Remarks.</i>
28	Blasius (Welcker). <i>Arch. f. Ohren.</i> , Bd. i.	B.		6 mths.	Rudi- mentary. Tragus fused with antitragus. Total atresia.	Nil.		Operation (Table I.).
29	Edsall, <i>Times</i> and <i>Register</i> , N. Y. and <i>Phil.</i> , i. 372.	L.	F.	8.	Helix almost absent at upper part. Tragus fused with antitragus. Ear rudi- mentary. External meatus shallow depression.	Nil.	Watch Politzer's acou- meter	} not heard.
30	Bürkner, <i>Arch. f. Ohren</i> , xxii. 290.	R.	F.	8 mths.	Longi- tudinal ridge. upper part cartila- ginous. Total atresia.	Fistulae auris congenita just above rudiment- ary auricle. Small irregular appendage in front.		
31	Grunert, <i>Arch. f. Ohren.</i> , xlv.	L.		Child	Rudi- mentary. Ear turned forwards. Total atresia.	Two fistulae auricule congenita in auricle.		Deformity improved by opera- tion (Table I.).
32	Carson, ref. <i>Arch. f. Ohren.</i> , xvi. 301.	B.		3 days.	Rudi- mentary. Dimple in the skin shows posi- tion of the meatus (?).			
33	Meier (Bremer), <i>Arch. f. Ohren.</i> , xiii. 276.	L.			Rudi- mentary. Total atresia.		Hearing not im- proved by opera- tion.	(Table I.)
34	Meier (Bremer), <i>Arch. f. Ohren.</i> , xiii. 276.	R.			Rudi- mentary. Total atresia.		Hearing better whilst opening after operation existed.	(Table I.)
35	Moos, <i>Zeits. f. Ohren.</i> , xi. 267.	R.	M.	3.	Auricle 1½ cm. shorter and nearly a half smaller than on		Deaf-mute.	Cord wound round head at birth.

TABLE II.—*continued.*

<i>No.</i>	<i>Reference.</i>	<i>Side.</i>	<i>Sex.</i>	<i>Age.</i>	<i>Auricle.</i>	<i>Other Deformities.</i>	<i>Hearing.</i>	<i>Remarks.</i>
					left side. Meatus ended in a cul-de-sac.			
36	Moos, <i>Zeits. f. Ohren.</i> , xi. 267.	R.	F.	3.	Rudi- mentary. Three small auricular appen- dages. Total atresia. Dimpling of skin in position of external meatus.	Left auricular appendage below lobule.	Deaf-mute.	
37	Moos, <i>Zeits. f. Ohren.</i> , xi. 267.	L.	M.	7½.	Rudi- mentary. Longi- tudinal protuber- ance. Dimpling of skin behind tragus.		Deaf-mute.	Umbilical cord wound round head at birth. Mastoid process well de- veloped.
38	Moos, <i>Arch. Otol.</i> , N. Y., xiii. 238.	R.	M.	30.	Atresia due to auricle being folded over tragus. Ear smaller than left side. Cul- de-sacs above and below, end- ing blindly.	Nil.	Hears watch well, and all tuning- forks by bone conduction.	
39	Colomiatti (Gradenigo), <i>Arch. f. Ohren.</i> , xxxiv. 281.	L.	M.	35.	Complete absence. Skin smooth. No trace of auricles.	Nil.	Bone conduction good.	
40	Gradenigo, <i>Arch. f. Ohren.</i> , xxxiv. 281.	R.		3½ mths.	Marked de- formity. Lower half nearly nor- mal. De- pression pointing to external meatus.			

TABLE II.—*continued.*

<i>No.</i>	<i>Reference.</i>	<i>Side.</i>	<i>Sex.</i>	<i>Age.</i>	<i>Auricle.</i>	<i>Other Deformities.</i>	<i>Hearing.</i>	<i>Remarks.</i>
41	Gradenigo, <i>Arch. f. Otol.</i> , xxxiv, 281.	R.	M.	22.	Upper half auricle markedly deformed; lower half normal. Dimpling of skin shows (?) external meatus.		On right side, hearing-tests point to laby- rinth being functionally normal.	
42	Roullard (Grade- nigo), <i>Arch. f. Otol.</i> , xxxiv, 281.	R.			Both auricles normal. Total atre- sia right.	Mouth large. Left side 1½ cm. from oral orifice. Dimpling of skin, surrounded by a ring of radiating hairs.		
43	Mazzoni (Grade- nigo), <i>Arch. f. Otol.</i> , xxxiv, 281.	B.	F.	19.	Absence of auricles. Total atresia.	Cartilaginous appendages on both sides.	Loud noises could be heard.	Operation (Table I.).
44	Triquet (Grade- nigo), <i>Arch. f. Otol.</i> , xxxiv, 281.	R.			Absence of auricle. Total atresia.	Between mouth and angle of jaw an appendage.		
45	Corton (Vali), <i>N. Y. Med. Times</i> , 1886.	B.	M.		Slight fold of skin re- presented the auricle. Dimpling showed site of (?) exter- nal meatus.			
46	Flehinger (Vali), <i>Med. Zeits.</i> , Wien, 1886.	B.			Three small elevations of skin re- presented auricle. Dimpling showed site of (?) exter- nal meatus.			
47	Ullhorn (Grade- nigo),	B.			Auricle re- presented by two		Could speak and hear.	

TABLE II.—continued.

No.	Reference.	Side.	Sex.	Age.	Auricle.	Other Deformities.	Hearing.	Remarks.
	<i>Arch. f. Ohren.</i> , xxxiv. 281.				small protuberances. Total atresia.			
48	Prahl (Bremer, <i>Arch. f. Ohren.</i> , xiii. 276.	R.	M.	5.	Rudimentary. Total atresia.	Face ill-developed on right side.		
49	Polidoro Virgilius (Gradnigo).	B.			Complete absence of auricle.			
50	Lycostenus (Gradnigo).	B.			Complete absence of auricle.			
51	Stetter, "Congenital and Acquired Deformities of the Ear," Jena, 1898.							Operated on, but all failures.
52								
53								
54								
55	} My cases.							
56								
57	Schwartz's Ohren. Klinik Hallé (not published).	L.	M.	1 day.	Rudimentary. Auricle represented by longitudinal ridge. Fusion of tragus and antitragus. Total atresia.	Otherwise normal.		

THE QUESTION OF RETAINING THE SKIN OF THE POSTERIOR MEATAL WALL IN THE RADICAL MASTOID OPERATION.

By RICHARD LAKE, F.R.C.S.

THERE has been lately a somewhat prolonged correspondence in a contemporary about the various meatal flaps. It is not necessary to enter at all fully into their history, or into the different methods that have from time to time been evolved by the inventive faculties of surgeons for the better utilization of the skin of the posterior wall of the meatus. To this I make one exception—that is, the suggestion put forward a few years since by Moll of Arnheim to remove entirely the posterior portion of the meatus, and it is my wish to show that, whilst disagreeing with his contention, I support his suggestion.

Moll contended that the meatal wall would be better removed to facilitate healing and to save trouble; to this I do not agree.

The reason that makes me advocate the entire removal of the part in question is, that very frequently, two years or so after the radical operation, one's patients return with deafness, and on looking for the cause, one finds the whole post-operation cavity filled with a mass of cerumen. The explanation is simple: the ceruminous glands lie almost entirely in the posterior wall of the external meatus; and by any of the flaps in use, including the one that I described in the *Archives of Otology*, these glands are transplanted from their normal situation to a position from whence the exuded cerumen is unable to escape, and from whence it is no longer passed outwards by the natural means. The delayed appearance of the deafness is due in part to the large cavity there is to fill, and in part to the suspension of the glandular activity for some period subsequent to the operation.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

Sixty-second Ordinary Meeting, January 4, 1901.

F. DE HAVILLAND HALL, M.D., *President, in the Chair.*

THE following cases and specimens were shown :

Chronic Spasm of the Palate, Pharynx, and Larynx in a Woman aged Thirty. Shown by Sir FELIX SEMON, M.D.

I am indebted to my colleague, Dr. Risien Russell, under whose care the patient is at present at the National Hospital for Epilepsy and Paralysis, for permission to show her to-day. In order to avoid the case being duplicated, I beg to state expressly that the same patient was demonstrated by Dr. Russell before the Neurological Society a few months ago.

The patient, a married woman, who has had six children, of whom three are dead, and one miscarriage, and whose previous and family history is unimportant, came to the hospital in January, 1900, complaining of clicking noises in her head and curious movements in her abdomen. These movements were darting in character, as if there were something alive, and passed from the stomach into the throat, head, back, and limbs with great rapidity. In October, 1899, she first noticed the clicking noise in her throat, which has continued ever since. It has apparently nothing to do with the darting movements in the abdomen.

On examination, the patient is a fairly well-nourished woman with red hair, who lies or stands with her head thrown well back, the neck and chin thrust forward, the latter generally inclined to one side or the other, and the mouth is kept slightly open. A constant slight clicking sound goes on with an average frequency of about four per second. On looking into the mouth, this sound is seen to be produced by rapid vertical movements of the soft palate, associated with similar movements of the floor of the mouth. These movements go on whether the jaws are open, even widely, or closed; but if the chin is depressed into its natural position with the mouth closed the noise ceases, and the movements of the floor of the mouth cease, although she says she can still feel the palate moving.

The clicking sound is audible when she speaks, between the single words, but is said to cease, as well as the movements, during sleep. The movements, on the whole, are rhythmical, but are occasionally interrupted by momentary irregular intervals, hardly lasting longer than a second or two, after which they return.

The epiglottis makes similar movements analogous to, and synchronous with, those of the soft palate. These movements also take place in a vertical direction. The arytenoid cartilages and the vocal cords move equally frequently and energetically, but their movements are from side to side, not up and down; like those of the palate and the floor of the mouth, they are occasionally interrupted for a moment, after which they return. Usually they are so energetic that, during quiet respiration, the inner surfaces of the arytenoids, when the inward movement is executed, touch one another, but the oscillatory movements continue even when the glottis is wide open. During phonation everything appears normal.

Externally the mylo-hyoid can be seen and felt contracting exteriorly, whilst the whole larynx is constantly being spontaneously moved a little up and down, and at the same time somewhat forwards and backwards, the movements being energetic enough to be communicated to the palpating finger of the examiner.

Her memory and attention are good; the intelligence is good, but she is distinctly depressed.

No delusion, except that she is sure she has something alive inside her.

The optic discs are healthy, the muscles everywhere well developed, and the movements well performed without inco-ordination or tremor. Reflexes everywhere normal, gait normal except for the position of the head described above, and nothing abnormal found on examination of the abdomen.

Speculation as to the cause of this peculiar chronic spasm, as to its mechanism, and as to the exact localization of the focus of irritation, appears, at the present state of our knowledge, idle.

It is only desired to put the case on record.

Dr. LAMBERT LACK wished to call the exhibitor's attention to a paper he contributed to the *Laryngoscope* in 1898, in which, under the title of "Pharyngeal Nystagmus and Allied Conditions of the Pharynx and Larynx," he had described several cases similar to the one now shown. The speaker and Dr. Bond had each brought a similar case before the Society, although their cases were less marked and the movements were limited to the pharynx and soft

palate. As far as Dr. Lack had been able, he had collected in the paper referred to all the previously recorded cases of spasmodic and tremulous movements of the pharynx and larynx. He found they could be divided into two distinct classes: (1) The most severe and extensive cases, which were usually due to some gross lesion of the central nervous system, *e.g.*, cerebellar tumours, etc.; and (2) the milder cases, which were of reflex origin, and apparently due to some small local lesion, *e.g.*, post-nasal catarrh, pharyngitis sicca, etc.

Dr. HERBERT TILLEY related a minor case of the same affection occurring in an adult, in which only the left side of the pharynx showed constant spasmodic movements, which extended the whole length of the pharynx. The affection supervened on a carriage accident—the patient was thrown out, and suffered severe concussion and bruising. The patient's speech was becoming very indistinct, knee-jerks absent, tongue tremulous, and Argyll Robertson's pupils were present. The diagnosis in the case referred to seemed to point to incipient general paralysis of the insane.

Dr. WATSON WILLIAMS believed that clonic pharyngeal spasms were not so very uncommon in cases of general paralysis. The vocal cords were more rarely implicated. It seemed to him that these convulsive tics were possibly the analogue (bulbar) of psychic tics (cortical). and they were sometimes associated, for echolalia and coprolalia had been observed in association with clonic pharyngeal spasm by Kellogg.

Dr. CLIFFORD BEALE called attention to the fact that the movement of both larynx and pharynx ceased directly the patient's attention was drawn to the acts of phonation or respiration. The cases which Dr. Lack had referred to differed in this respect from the one under discussion.

Dr. SCANES SPICER considered the sucking noise to be produced in the larynx by the separation of the moist apposed surfaces of the arytenoid pyramids, for the same continued unaltered when the soft palate was firmly pinned against the spine. He had an impression that Sir Felix Semon had shown a somewhat similar case before, but unilateral, and in which the orbicularis palpebrarum of the same side was affected.

Mr. CRESSWELL BABER remarked that pharyngeal spasm was not uncommon; it was described as a clicking noise, and as objective tinnitus. He had not seen laryngeal spasm, or any case in which the spasm took place so rapidly.

The PRESIDENT was sure that they were all thankful to Sir Felix Semon for bringing forward this unique case.

Sir FELIX SEMON, in reply, agreed with Mr. Baber's observations. He had seen several cases of "clicking" palate, but in these the spasm was limited to the soft palate, and did not affect the larynx. He was grateful to Dr. Lack for drawing his attention to his paper in the *Laryngoscope*, which was unknown to him. He was unaware that anything like his case had been previously described, although he knew that Gerhardt had mentioned tremulous movements of the vocal cords as the only sign of a cerebral tumour pressing upon the temporal convolutions.

Chronic Frontal Sinus Empyema treated by Kahnt's Radical Operation. Shown by Dr. HERBERT TILLEY.

A woman, aged forty-six, upon whom this operation had been performed. The symptoms complained of were constant left supra-orbital headache, chronic discharge of pus, and nasal obstruction (due to polypi) upon the left side.

In performing the external operation, the anterior bony wall of the sinus was completely removed, the pathological products curetted away, a large opening made into the nose, the sinus walls treated with chloride of zinc (gr. xl. ad ʒi.), the cavity packed with iodoform gauze, and the soft parts finally sutured with catgut for the other half of the wound. The end of the gauze was led out of the inner angle of the wound.

After five days some 6 inches of the gauze were removed, and the remainder of it after a further interval of four days. The sinus cavity seemed quite healthy, and external pressure was now applied to the soft parts, so that they were pressed on to the posterior wall of the sinus, to which they had firmly adhered, thus obliterating the cavity. The patient was in the hospital seventeen days, and there has been no discharge of pus from the nostrils since the day of operation five weeks ago.

Case of Cured Maxillary (Double), Ethmoidal, and Frontal Sinusitis. Shown by Dr. STCLAIR THOMSON.

The patient was a gentleman, aged forty-one, who had suffered from nasal suppuration for eight years. Twice in Natal, where he lived, he had had the alveolar tooth socket drilled, and the right antrum washed out for some months. The pus soon returned when the washing was discontinued. It was found that the frontal sinus on the same (*i.e.*, right) side was affected; and in hopes that the maxillary antrum only acted as a reservoir, it was simply drained through a tooth socket while the frontal sinus was opened from the outside. As a result of this operation pus ceased to descend from

the fronto-nasal duct, which was obliterated, and the exposed part of the sinus filled with cicatricial tissue. But still pus oozed from the external corner of the frontal wound, and on placing the patient again under chloroform it was found that this proceeded from a diverticulum of the main frontal sinus, with which it communicated by a narrow neck which had been overlooked at the first operation. This pocket, running outwards and backwards above the outer orbit, had been opened up and plugged so that it healed from the bottom, just as a mastoid wound does. It was a slow process, taking three months, but there was no disfigurement.

The maxillary sinus on the same side had been treated by the Caldwell-Luc operation, and the ethmoidal cells had been curetted. The left maxillary antrum was simply drained, as it appeared to be only of recent infection from the right side.

It would be seen that the patient was not disfigured externally, as the incision was well under the eyebrow. Internally the right nasal chamber had not been interfered with physiologically by the removal of the anterior ends of the inferior and middle turbinals. There was no pus in the nose, but a little dry scab formed daily over the ethmoidal-cells opening. The patient expressed himself as struck by the recovery of the sense of general well-being. He said that he felt ten years younger than at the beginning of treatment, and now knew that he was then aging prematurely.

Sir FELIX SEMON suggested to Dr. Tilley that it would be worth while in cases of this nature, in which the whole of the anterior wall of the frontal sinus was removed, to put in a plate either of aluminium, platinum, decalcified bone, or of ivory. Such devices acted well in other parts, and why should they not in the frontal sinus region? Disfiguration might thereby be lessened considerably, or even be totally avoided.

Dr. WATSON WILLIAMS remarked that at the Portsmouth meeting of the British Medical Association in 1899 reports of two cases of diffuse suppurative osteitis, following operations for frontal sinus empyema, were reported. He desired the opinion of members of the Society as to the possibility of increasing the risk of such an occurrence by putting pressure upon the frontal sinuses, after opening, curetting, and cleaning them, as in the radical cure.

Mr. CRESSWELL BABER said it seemed as if surgeons were now coming back to the operation of Kuhnt, who removed the whole of the anterior wall of the frontal sinus. He himself had shown at the Society a most refractory case, in which cure had resulted from resorting to this radical operation after all other measures had failed. The depression was not marked in his case, and the results

were satisfactory. He asked, Was it advisable to make a large opening into the nose or not? In the radical operation the discharge escaped on to the surface, and the sinus was filled with healthy granular tissue. He took it for granted that the anterior part of the middle turbinate was removed previous to operation on the frontal sinus.

Dr. SCANES SPICER thought that in both of these cases he would himself have removed much more completely the front part of the middle turbinated and anterior ethmoidal cells before operating externally on the frontal sinus. He had seen many cases presenting all the symptoms and signs of frontal empyema get well after this procedure without the need of an external operation, and had found that even if this did not happen, the drainage of the frontal sinus into the nose was much facilitated by such free removal. While acknowledging the necessity for complete resection of the anterior wall in rare cases, he dreaded the deformity resulting, and thought that clearing out the anterior ethmoidal region well would render it still less often necessary.

Dr. STCLAIR THOMSON, in reply, said that the anterior half of the middle turbinate was removed before the operation on the frontal sinus. The suggestion of Mr. Baber was one to be considered—whether it was not much more desirable to obliterate the fronto-nasal duct, and cut off all communication with the nose. He started in this case with the Ogston-Caldwell-Luc operation on the frontal sinus, and passed his little finger up the nose into the sinus. During the treatment he changed his mind, and succeeded, by exerting a little pressure, in cutting off the frontal sinus from the nose. The patient ran no risk of being reinfected because he now had no sinus. The idea of Sir Felix Semon was worthy of attention. He had a patient who told him that the bank clerk next to him had a platinum plate in his forehead, and feels very well. Other substances besides platinum might be used. In the *Medical Press and Circular* of recent date solidified vaseline was suggested for this purpose.

In answer to various questions, Dr. TILLEY said that he would only recommend so complete an operation in exceptional cases, because of the deformity produced. In some seven cases which he had previously shown to the Society equally good results had been attained with no deformity, and in these instances far less of the anterior wall had been removed. He had performed Kuhnt's operation in this case really to satisfy himself as to how much deformity it produced. He considered that there was very little, in fact, no risk of septic osteomyelitis ensuing if the external wound

was not sewn up at the close of the operation. To avoid the complication it was also wise to make a large opening into the nose, which had the additional advantage of breaking down the anterior ethmoidal cells, which were always diseased, and which, if left alone, were very liable to reinfect the sinus, however carefully the latter was treated by curetting and disinfection.

Case of Epithelioma of the Tonsil and Glands in the Neck; Operation; Recovery. Shown by Dr. LAMBERT LACK.

The patient, a man aged fifty, came under my care one month ago, complaining of a painful lump in the throat. An ulcer was seen in the position of the right tonsil, about the size of a florin. It spread on to the posterior pillar of the fauces, slightly on to the lateral wall of the pharynx, and downwards to within a quarter of an inch of the tongue. The edges of the growth were hard and everted. No enlarged glands could be felt in the neck. As the man was willing to be operated on, and the case appeared to be an eminently suitable one, a piece of the growth was at once removed for microscopic examination. The sections showed the growth to be an undoubted epithelioma.

The operation that was performed may be divided into four stages:

1. An incision was made along the anterior border of the sterno-mastoid, and the large vessels in the anterior triangle freely exposed. Some enlarged glands were found, and, together with the fascia over the vessels, were cleanly cut away. Ligatures were placed on the external carotid and some of its branches, but were not tightened. A pad of gauze was packed in between the carotids and the lateral wall of the pharynx.

2. Tracheotomy was performed, and a Hahn's cannula inserted.

3. The cheek was slit back from the angle of the mouth to the ramus of the jaw. A large sponge, with tape attached, was pushed into the larynx.

4. The pillars of the fauces were cut through with scissors, and the growth partly cut out with scissors and partly separated from the lateral pharyngeal wall by dissection with the finger. The wound in the mouth remained separated from the wound in the neck by a thin layer of fascia. There was no bleeding to speak of.

The temporary ligatures on the carotids were removed, and the wound in the neck and cheek sewn up. The tracheotomy tube was retained until the following day. After twenty-four hours the patient was able to swallow, and his further progress was uneventful. The wounds in the neck and cheek healed by first intention.

The patient was allowed up on the seventh day, and left the hospital on the fourteenth day.

The patient was brought forward to illustrate the excellent immediate result that can be obtained by such an apparently severe procedure. The whole safety of the patient depends upon the wound in the neck not communicating with, and being infected by, the wound in the mouth. The danger of hemorrhage is entirely avoided by the temporary ligature of the vessels and the tracheotomy. The case also illustrates again the fact that even considerably enlarged glands in the neck may not be palpable, and the consequent necessity for an incision in the neck in every operation.

The PRESIDENT thought they would all agree in congratulating Dr. Lack upon the success which had attended his case. It was a perfect result, and one could not wish for a better either with regard to the completeness of the removal or the rapidity of the healing.

Bilateral Webbing of the Fauces. Shown by Dr. HENRY J. DAVIS.

This is a woman, aged fifty-two, with bilateral webbing of the fauces. The webbing may be entirely the result of old ulceration, but the symmetrical appearance of these fine bands of tissue would seem to indicate cicatrization following ulceration of some congenital malformation of the faucial pillars, *e.g.*, an accessory palato-pharyngeus.

Since childhood speech has been indifferent, and she had "a sore throat for ten years at one time," which favours this supposition. She is suffering from tinnitus and deafness.

The PRESIDENT had no doubt at all that this was a case of ulceration of scarlatinal origin. He had seen a similar case following smallpox, but scarlet fever was the most frequent cause. He did not think for one moment that its origin was congenital.

Dr. STCLAIR THOMSON had seen a similar case, which was even and regular, in which he could discover no history of syphilis or scarlatina. He had discussed the case with Mr. Bland-Sutton, who informed him that this defect did not correspond to any developmental defect.

Dr. FITZGERALD POWELL had shown a somewhat similar case to the Society some time ago. At the time he thought the abnormality must be developmental in character, the posterior pillars of the fauces being attached low down to the posterior wall of the pharynx on both sides, each being very regular in outlines. The trend of the opinion of the Society on that occasion was that it was probably

the result of scarlatinal or other ulceration. He thought Dr. Davis's case was due to this cause.

Sir FELIX SEMON, with great respect for Mr. Bland-Sutton's opinion, begged to differ from the statement attributed to that authority. He thought that such a case might be developmentally explained; there was no doubt of the existence of quite a number of cases with slits in the anterior pillars of the fauces, absolutely symmetrical, without any ulcerative agency to account for their presence. He promised to bring before the Society a drawing of a case of his own bearing on that point, and he remembered that similar cases had been described by Professor Lefferts. With regard to Dr. Davis's case, he would be probably found to be in a great minority; but he agreed with Dr. Davis that this case very likely represented a mixture between arrested development and acquired ulceration.

Dr. WATSON WILLIAMS's impression was that this was a mixed case, in which there had been nine or ten years ago a sore throat with an ulcerative process going on; but the symmetrical condition of the faucial webbing suggested a congenital origin. The patient said she had not noticed it before. He himself had had a patient brought before his notice who did not know he had anything the matter with his throat, but he was found to have almost absolutely symmetrical webbing on either side of the fauces, very similar to this patient; in that case the condition was of congenital origin. He promised to show the Society a drawing of this case.

Dr. CLIFFORD BEALE thought it was a matter of considerable interest to determine whether these cases were due to scarlatinal poison in the first instance. In favour of such a view was the distribution of the splitting of the palate, which followed the lines of inflammation of the soft palate so often seen at the onset of scarlatina. Against the theory, however, was the fact that, although in the course of hospital practice one may examine a very large number of throats which have been affected at some time with scarlet fever, such clefts, apart from cicatricial contraction, were rare.

Dr. HERBERT TILLEY was of opinion that the pharyngeal appearances were the result of ulceration, and most probably post-scarlatinal in origin. He had recently seen an almost identical case in a lady who had consulted him for deafness which was also post-scarlatinal in origin.

Mr. BABER had no doubt that it was due to previous ulceration in the throat.

Dr. DUNDAS GRANT suggested that a drawing should be made,

because the case presented its features in a remarkably striking way. It seemed to him that the congenital condition was represented on the right side of the throat, but on the left side that there had been an abscess contemporaneously with the acute suppurative otitis due to scarlet fever, which she had as a child. He had seen in the fever hospitals several cases among children where such a condition existed as that on the tonsil of the left side, produced by scarlatinal peritonsillar abscess.

Dr. DAVIS said the patient had always had some impediment of the speech and a periodical sore throat; one such "had lasted for ten years about fifteen years ago." What she complained of was tinnitus and internal and middle-ear deafness. He would try and get a drawing.

Case of Enlarged Thyroid cured by Iodide of Potassium. Shown by Dr. DAVIS.

This young woman came under my care last June, at the London Throat Hospital, with a large pulsating asymmetrical swelling of the thyroid, causing dyspnoea, stridor and considerable functional derangement; a very rapid pulse, but only slight proptosis, were present. The "tumour had been growing for eight years, but had suddenly grown rapidly, getting larger whenever she had a cold."

The patient asked for time to consider operation, which at that time seemed the only treatment. She was treated with 5 grains of potassium iodide, 5 grains of Ferri et ammon. cit. in a mixture; and she was ordered to rub equal parts of Ung. pot. iod. and Ung. hydrarg. biniodidi into the neck every night. She also inhaled the vapour of iodine crystals in a saucer.

In six weeks the tumour disappeared, all other symptoms rapidly subsiding. The iodide treatment was left off four months ago, and the thyroid showed signs of swelling, which again vanished under the same treatment.

The girl, beyond being slightly anæmic, is now perfectly well.

Mr. SPENCER said he should not use the word "cure," although good results, as in this case, did very often follow treatment by iodide of potassium and thyroid tabloids; but recurrence happened sooner or later, and surgery ultimately had to be relied on for the treatment of the masses containing cysts, etc. The tumours had a tendency to subside and come back, especially in young patients, such as that of Dr. Davis.

Dr. DAVIS said he did not literally mean "cure," which perhaps was not quite correct. All symptoms had disappeared under iodide,

then recurred; and under a further course of iodide and ointment (biniodide) had again disappeared. The patient was now under no treatment. There was a small cystic swelling on the right side, which was hardly noticeable. When he first saw the patient in June the goitre was a very large one.

Dr. STCLAIR THOMSON said that in decided thyroid tumours medicinal treatment was of little use. He had lately had the opportunity of discussing the subject with Professor Kocher, of Berne, whose experience in the question was unsurpassed, and who said that patients must make up their minds between putting up with the inconvenience of the growth or submit to the knife. He preferred cocaine as an anæsthetic.

Dr. FITZGERALD POWELL said in his experience medicinal treatment by iodides and iron was certainly of great use. He had had a number of cases of cystic goitre in which the cysts had been reduced, but this was not always the case, and then operation became necessary. The iron was largely answerable for the improvement in some of the cases, especially those occurring in young women with menstrual disorders and anæmia.

Dr. BENNETT supported the last speaker. He believed that permanent benefit frequently followed the use of iodides. One case especially occurred to him, in which the patient consulted a leading London specialist, who advised operation. The patient afterwards desired to try medical treatment first, and he had taken iodides with excellent result. The patient had remained free from trouble now for several years.

Dr. BALL said that formerly he was in the habit of treating those cases with iodides internally and iodine preparations externally, and that he often got apparent cures. For the last seven or eight years he had completely abstained from employing any special treatment, and he had got precisely the same results. Some cases improved spontaneously, as they did formerly under iodide treatment. He had absolutely no belief in the efficacy of any specific medicinal treatment of goitre.

Dr. DONELAN remarked that medicinal treatment produced no permanent benefit. It caused a contraction of the gland, which might be compared to the effect of the injections which were formerly so much in vogue. The gland diminished, and remained small for a considerable time, and treatment was abandoned; but later the growth increased more rapidly than previously. These cases, in his opinion, did as well without as with medicinal treatment; the severe cases all eventually came into the hands of the operating surgeon.

Sir FELIX SEMON called to mind that Sir Morell Mackenzie once told him that he had injected iodine in the case of a patient who had previously asked him if there was any danger in it. Sir Morell Mackenzie, speaking from the experience of hundreds of cases, had replied decidedly in the negative. The patient thereupon consented, but died five minutes after the injection in the consulting-room. Speaking from twenty-five years' experience, he could say that he had cured by iodide a good many cases lastingly.

Dr. SCANES SPICER wished to emphasize the view that many of these thyroid enlargements were inflammatory in origin, being attended with local pain, tenderness, and rise in temperature. Such symptoms soon disappeared on rubbing in some mild preparation of iodine, even if they were accompanied by some of the signs of Graves's disease, such as tachycardia, palpitation, and exophthalmos. He had no doubt they sometimes went away by themselves, as Dr. Ball had observed.

Sir FELIX SEMON wished to define his previous statement a little more accurately. His experience was that soft and absolutely parenchymatous goitres, especially when occurring in young girls, were favourable for the iodide treatment. With iodine and iodide of potassium—internally and externally—in the form of ointment and mixtures, he had effected a good many cures. In cases where cysts or fibroid elements developed, the medicinal treatment, needless to say, was not nearly so successful. In the case under discussion he could not see any inflammatory action whatever.

Dr. BRONNER said many cases which had resisted iodide of potassium were controlled by tabloids of iodothyrim.

Dr. WATSON WILLIAMS mentioned a case of goitre which had been cured many years previously by purely medicinal treatment at the hands of Sir Felix Semon. There was now not a vestige of the tumour.

The PRESIDENT referred to the injection of iodine. At one time he had used it extensively, but entirely abandoned it, owing to the death of a well-developed young guardsman, who died within a minute of the injection.

A Case of Swelling of Left Cheek and Eyelid. Shown by Dr. DAVIS.

For two years the patient, a woman, aged twenty-three years, has had a puffiness of the left lower eyelid, with swelling over the root of the nose and left upper jaw. On the supposition that she had antral disease, the antrum was opened through the socket of an extracted molar at Nottingham. She wore a plug, and was under treatment for nine months. No disease was found, and

nothing in the nose—beyond some slight enlargement of the middle turbinals—can be found to account for the disease. The nasal duct is free. The swelling is worse in the morning and late at night, but varies in the course of the day, and it appears to me to be lymphatic in nature. Her condition is unaltered by treatment. There is no albumen in the urine, and the general health is good. It may be a case of angioneurotic œdema.

Dr. BRONNER said these cases were fairly common, but seen more by ophthalmic surgeons. They always occurred in young women. Their nature was unknown, and they were generally unilateral.

Mr. SCANES SPICER had seen the condition associated with ethmoidal cell suppuration.

Dr. WATSON WILLIAMS regarded it as a case of recurrent erysipelas. It occurred in fairly definite attacks at the outset, followed by periods of quiescence, and leaving more and more persistent thickening. He had had two or three cases, but did not know what to do for their treatment.

Mr. DE SANTI had shown a case to the Society in a similar condition, except that it was more extensive; it resembled the description given by Dr. Watson Williams. His case was apparently due to a mosquito-bite. He considered the condition was one of lymphatic œdema, and probably due to the specific cocci of cutaneous erysipelas.

Dr. DAVIS said the swelling had gradually increased eight years, and had then suddenly developed more rapidly. After taking iodide internally, and Ung. Pot. Iod. and Ung. Hyd. Biniod. externally, for about a month, it began to disappear rapidly.

Recurrent Angiofibroma involving the Ventricular Bands and Vocal Cords. Shown by Dr. FURNESS POTTER.

The patient, a man aged forty-two, came under observation in the summer of 1899, complaining of hoarseness, which had come on gradually. On laryngoscopic examination the anterior third of the glottic space was seen to be filled, and the anterior third of both cords was obscured by (what appeared to be) a trilobed tumour, which on further examination with the probe, and on subsequent removal, was found to consist of two parts: one attached to the left ventricular band, on microscopic examination reported as simple papilloma; the other attached chiefly to the right ventricular band, and involving also the right vocal cord, the upper surface of which presented a ragged, torn-looking surface.*

* A section of this was exhibited at this Society November, 1899, and was reported on by the Morbid Growths Committee as angiofibroma.

The case has been under constant observation, and has continued to recur, notwithstanding that several removals have from time to time been effected with snare and forceps whenever the growth has become sufficiently protruding to be seized with instruments.

The surface now involved is more extensive than when first seen, the anterior commissure and left ventricular band and cord (?) being considerably affected.

During the last few months the patient states that he has had several attacks of hæmorrhage, on which occasions he has coughed up about a teaspoonful of blood. He suffers from much vocal disability, which seriously interferes with his occupation—a builder's foreman—which necessitates much use of the voice.

He would be glad to have any suggestions for further treatment other than what had been pursued.

The PRESIDENT would call this case by another and more grave name, *i.e.*, malignant disease of the larynx.

Dr. CLIFFORD BEALE commented on the free movement of the cords in this case, and asked how far one was justified in ignoring the rule that cancerous growth of the larynx usually produced impaired movements. The appearance of the growth itself certainly suggested malignant disease.

Sir FELIX SEMON said he had defined his position with regard to the question of mobility of the affected vocal cord in malignant disease of the larynx so often and so precisely before, that he was sorry there could still be any doubt on that point. It depended entirely on the depth of the infiltration whether or not there was any impairment of movement. If the disease was somewhat superficial, there might be free movement, even though the affection be already rather extensive; whilst, on the other hand, in a case of deep infiltration there might already be defective movement, though the actual outgrowth was still small. The question, therefore, stood thus: the absence of defective movement was no counter-proof to the existence of malignant disease, whilst its presence in cases where it was doubtful whether a growth was innocent or malignant was a valuable aid to diagnosis.

Mr. WAGGETT said Dr. Potter asked him to get the opinion of the Society whether it was desirable to do a thyrotomy, in order to see what the condition really was.

Mr. SCANES SPICER inquired if the patient had had a course of iodide of potassium.

Mr. DE SANTI said the sooner thyrotomy was done the better. He advised an exploratory thyrotomy.

Recurring Nasal Polypi. Shown by Mr. DE SANTI.

A girl, aged eighteen, suffering from persistently recurring nasal polypi. She had been under constant treatment at various hospitals for four and a half years before coming under his care at the Westminster. The polypi had been removed innumerable times by means of the snare.

He found large masses of toughish polypi in both nostrils, occupying the whole of the cavities; there was marked "frog face;" microscopically they consisted of mucous and fibrous tissue. He took the patient in, and under a general anæsthetic turned up the nose by dividing the reflection of the mucous membrane of the lower lip and gums, and thus got at the polypi; these were removed with the aid of suitable forceps and curetting. The patient remained free from the growths for some six to seven months; they then recurred, and subsequently another free removal under an anæsthetic was carried out: there was immunity from the growths for eight months. Now the patient is again in much the same condition as before. From the general appearance of the polypi and the free suppuration going on, Mr. de Santi considered there was accessory sinus suppuration. In connection with the last meeting of the Society, when the treatment of nasal polypi was under consideration, he brought the case forward as showing the results of the different methods of treatment and their failure. He was anxious to know if Dr. Lack's method of operation would be generally recommended, though one of Mr. de Santi's two operations consisted, in his opinion, in very much the same technique as Dr. Lack's.

Dr. HERBERT TILLEY had no doubt but that the case was one of chronic suppurative inflammation of the accessory sinuses. He had proved this as regards the frontal sinus, because the withdrawal of a probe passed into it was followed by a free flow of pus. Unless these accessory cavities were efficiently dealt with, the polypi would continue to recur as they had done formerly. The breadth of the upper portion of the patient's nose was very suggestive of chronic ethmoiditis.

Mr. DE SANTI asked Dr. Tilley if he was of opinion that the nasal polypi were secondary to frontal sinus suppuration in his case.

Dr. TILLEY said emphatically that this was his view.

Growth of the Right Cord in a Man aged Thirty-five. (Patient and Specimen.) Shown by W. H. KELSON.

The patient was shown at the end of last summer session, and, as there was some difference of opinion about the case, the President

had requested that it be shown again; but as the patient is a teacher, the growth was removed from the right vocal cord in August. The microscope showed a papilloma.

Dr. FITZGERALD POWELL remembered having seen this case when it was shown to the Society at a previous meeting. There still appeared to be a small portion of growth remaining below the anterior commissure which might have to be removed.

Dr. KELSON thought there might be a small papilloma below the cord on the right side. The patient had recovered his voice, and had passed an examination in singing, and so he thought it better to leave it alone at present.

Lupus of the Pharynx. Shown by Mr. R. G. JOHNSON for Mr. RICHARD LAKE.

This patient states she has suffered from "ulcerated sore throat" with dysphagia since November, 1899. There is no history of phthisis or of syphilis, congenital or acquired.

In April, 1900, the tonsils were removed, immediately after which her voice became affected.

At the present time there are well-marked signs of phthisis at the left apex.

On examination, the whole of the uvula, both posterior pillars of the fauces, the left tonsil, a small part of the soft palate to the left of the uvula, the surface of the lingual tonsil, what remains of the epiglottis, the ary-epiglottidean folds, with the arytaenoids and ventricular bands, are seen to be involved in a lupoid process, which is, however, in a fairly stationary condition.

Dr. DAVIS had seen the case in the Middlesex Hospital; a piece was removed from the tonsil, examined, and pronounced to be lupus.

Case of Bilateral Abductor Paralysis. Shown by Dr. J. B. BALL.

A young man, aged twenty-four, admitted recently to the West London Hospital for a hæmatocele of the testicle. Surgical interference being considered desirable, ether was administered. While under ether, and before the operation was begun, his breathing stopped, and he became cyanosed. Artificial respiration was performed, and air began to enter with loud stridor. Artificial respiration was kept up for about ten minutes, but the stridulous breathing continued for three-quarters of an hour. The next day Dr. Ball was asked to examine the larynx. The condition present is that of bilateral abductor paralysis. It is not quite typical, however. There is some obliquity of the line of the glottis, and some

asymmetry of the cords. The history points to the condition having existed for a very long period, if, indeed, it was not congenital. The patient states that, as long as he can remember, his breathing is noisy and difficult on the least exertion. His mother states that as an infant his breathing was always troublesome, and frequently crowing in character, and that when he was born he was not expected to live long, owing to his difficult breathing. The knee-jerks are present, and there is no sign of disease in the chest. The patient has not had syphilis.

Mr. SPENCER said it was a very curious-looking larynx. One cord was completely paralysed. The left cord, however, retained a good deal of movement. It might be congenital or syphilitic in origin. The question was, What would happen to the man? Was it safe to do anything to the larynx, or should it be allowed to go on as it was? There was not much room there, and with a little inflammation he might soon get into a dangerous condition.

Dr. WATSON WILLIAMS thought the right vocal cord appeared quite fixed, and there was certainly movement of the left cord. He suggested that some old inflammatory mischief caused fixation of the right cord, and that the present condition of the left vocal, viz., abductor paralysis, was due to some more recently developed affection. The increased pulse-rate, 96 a minute, suggested the existence of a bulbar lesion.

Sir FELIX SEMON said he had laid it down many years ago as a rule that in every case of bilateral abductor paralysis, if medical or surgical treatment did not succeed in actually restituting the activity of the abductors, it was the duty of the laryngologist to perform tracheotomy as a prophylactic measure, and rid the patient of the risk of suffocation. Since then, however, he had seen several cases in which fairly severe bilateral abductor paralysis had existed for many years with impunity. He reminded the Society that he himself had shown to it two such cases a few years ago, one of which he had already shown on the occasion of the International Medical Congress of 1881, *i.e.*, fully twelve years before his last demonstration. This had made him somewhat doubtful as to whether his previous dogmatism was justified; although, on the other hand, several cases had been recorded in which the non-observance of his rule had led to sudden death by asphyxia. His course now was to tell the patients plainly how matters stood, and leave them to decide. Certainly it did not increase the amenities of life to go about for years with a tracheotomy tube. On the other hand, an attack of simple laryngeal catarrh might put the life of the patient in danger at any time, as

actually happened in the case from which he had abstracted his rule.

Dr. WATSON WILLIAMS mentioned a case apropos of Sir Felix Semon's remarks. The patient was brought to the Royal Infirmary at Bristol, and had marked inspiratory dyspnœa with stridor. On examining the larynx he found well-marked bilateral abductor paralysis. No reason for it could be discovered. Bearing in mind the dictum laid down by Sir Felix Semon, he was tracheotomised. He was able to breathe very comfortably, and in the course of a fortnight, owing to the left thyro-arytænoides internus having become paralysed, he was able to do without the tube.

Dr. BRONNER recommended the use of large intubation tubes in cases of abductor paralysis with difficulty in breathing. The tube should be worn for a few hours daily, or constantly if possible, for a few weeks; this in many cases permanently relieved the dyspnœa.

THE PRESIDENT: It was a very difficult question to decide what should be done. There was a well-known Member of Parliament some ten or eleven years ago with more or less mechanical fixation of the cords; adduction was good, but abduction very incomplete. He was able to speak in the House. The condition, dating from small-pox, had existed upwards of thirty years. He caught a slight cold, and died from laryngitis. Probably if something had been done his life would have been spared.

Specimen of Cyst ("Dermoid"?)

On Saturday, December 29, 1900, I removed the specimen shown from the floor of the mouth in a girl, aged sixteen years. The swelling which it caused was first noticed thirteen months ago, and had been gradually increasing.

When first seen I found, on examination, a considerable rounded swelling, extending from below the symphysis to just above the hyoid bone; it was movable, soft, and fluctuating, and on looking into the mouth it was seen to push the floor upwards, and could be felt well back under the tongue: it had somewhat the appearance of a ranula, but was more regular in shape, and occupied both sides of the frænum linguæ.

I removed the cyst by a median incision through the skin, extending from just below the symphysis to just above the hyoid. The superficial structures were carefully divided, bleeding points secured, when the white glistening cyst wall was exposed, and by sweeping the finger round the growth it was easily enucleated and brought out. The wound healed by first intention, and little scar was left.

PROCEEDINGS OF THE BRITISH LARYNGOLOGICAL,
RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

*Ordinary General Meeting, held at 11, Chandos Street, Cavendish Square, on
Friday, January 11, 1901.*

The President, Mr. MAYO COLLIER, in the Chair.

THE PRESIDENT read notes of a case of aural exostosis, as did also Mr. LENNOX BROWNE. Dr. Kelson showed a similar case at the last meeting of the Association, and the cases were discussed together.

THE PRESIDENT agreed that removal, unless imperatively necessary, should be avoided. Cases arose requiring operation; and an extensive operation might be requisite, as in the case related by himself. He preferred in this case the operation of tympano-mastoid exenteration as the safest, easiest, and most efficient procedure.

Mr. LENNOX BROWNE remarked that the late Dr. Cassells had shown that all cases of true exostosis originated from granulations, furuncles, and the like. These cases are far the easiest to cure, as they were more or less pedunculated, and can be evulsed or removed with comparatively quick healing of the surface and with but little chance of recurrence. The case related by Dr. Kelson was an instance of hyperexostosis, and originated in inflammation of the periosteum. This was generally annular, often multiple, and occasionally single. One of the most frequent causes of this latter form was swimming and diving. Beyond attention to the removal of accumulation, such as impacted cerumen, apt to accumulate behind the bony overgrowth, the surgeon would do well to avoid operative procedure, for such a course was not without danger, and the after-result was by no means so invariably satisfactory as had been sometimes reported.

It was of historical interest to note that so fine a pathologist as Toynbee considered these cases of gouty origin, and prescribed iodide of potassium.

Dr. DUNDAS GRANT considered pedunculated exostoses of the meatus exceedingly rare; their removal was comparatively easy and thoroughly justifiable. Hyperostoses were much more common, and as a rule their removal was neither necessary nor justifiable; a very small opening was sufficient for hearing purposes, and when occlusion was present it was usually due to the blocking up of the stapes between the hyperostosis by cerumen or desquamated epithelium, which there was no difficulty in removing. To facilitate this he made use of a very fine pointed gum-elastic cannula, which

could be adapted to the tip of the aural syringe. The removal might be called for in the case of patients residing at a distance from skilled aid.

Mr. BARK thought that operation was justifiable in cases where persistent and unbearable tinnitus was present, especially where other probable causes could be excluded.

Dr. SCATLIFF said: It does not appear, as far as I am aware, to have been proved that the acuteness of one's hearing is *much dependent* upon the size (calibre) of the external auditory meatus; in fact, some persons with the smallest aperture hear most distinctly. Under these circumstances, therefore, if the exostosis be not large enough to entirely block the meatus or to so occlude the passage as to prevent collections of cerumen, epithelium, etc., behind the growth from being removed, it may not be necessary to radically remove them, when it has been found that deafness has in reality been due to these accumulations rather than to the exostosis itself.

Dr. WYATT WINGRAVE considered that their treatment should be guided by the symptoms, and that increasing deafness, with or without other troubles, would indicate removal. He had found a 2 mm. trephine, driven by a dental engine, rapidly penetrate both the ivory and cancellous varieties, after first stripping off the periosteum and stopping bleeding.

It was difficult to determine which variety the exostosis belonged to before operating, except when there was suppuration, when it was almost invariably cancellous.

A Case of Facial Paralysis with Middle-Ear Disease. Shown by Dr. WYATT WINGRAVE.

Male, aged thirty-four, had a mild attack of acute inflammation of the middle ear, lasting three weeks, in June last. In September he had another, when he developed left facial paralysis, for which he was seen six weeks later. There was slight serous discharge, with perforation and slight deafness. These cleared up in about three weeks, but the paralysis persists, having lasted nearly five months. His gustatory sense is undoubtedly impaired on the paralyzed side; responses to the more delicate tests are unreliable. He has a scar over the left eyebrow, the result of a bicycle accident in August last, but this does not seem to have any connection with the paralysis. He has been taking potassium iodide and strychnia for six weeks. The persistence of the paralysis following an ear trouble so apparently slight, together with the pathological interpretation, render the case of interest.

A Case of Facial Palsy with Recurrent Polypi. Shown by
Dr. TRESILIAN.

W—, a male, aged twenty-six, had had chronic suppuration of both ears since fifteen years of age. He came first two months ago with polypi in both ears. These were removed and rapidly recurred, and were again removed. Polypus again rapidly recurred on the right side, and he had severe headache, rigors, temperature 101° F., pain of a knocking character in ear and mastoid and back and side of head. These symptoms were suggestive of retention in antrum and tympanum. He also had facial paralysis on that side, which had only cleared up within the previous few days. Removal of polyp and cleansing relieved all symptoms, but a polyp was again recurring on that side. The left ear was better. The speaker said Stacke's operation would be required on the right side, with removal of carious bone.

Dr. DUNDAS GRANT considered that, in Dr. Wingrave's case, the facial nerve was affected in the tympanic cavity; had the disease been lower down in the nerve, the sense of taste would not have been disturbed, and had it been higher up—say in the internal auditory meatus—the auditory nerve would have been simultaneously affected. In the present instance there was distinct diminution of taste both in the anterior and posterior part of the left side of the tongue, showing that both the chordal and the glosso-pharyngeal fibres were interfered with, the former probably in that part of the chords in the mass of the facial nerve lying between the entrance of the chorda tympani into that nerve and the exit of the great superficial petrosal, and the glosso-pharyngeal fibres probably on the inner wall of the tympanum. It was likely that there was a dehiscence in the bony wall of the aqueduct of Fallopius. He advised early and energetic use of the continuous galvanic current, the administration of iodide of potassium, and as a last resort the performance of the mastoid operation, in order to relieve any pressure on the facial nerve.

Dr. DUNDAS GRANT thought the safety of Dr. Tresilian's patient would be much greater if the radical operation were performed.

In Mr. Wingrave's case, Mr. COLLIER thought the trouble was maintained and prolonged by the Eustachian and nasal occlusion.

A Case of Middle-Ear Disease with Complications. Shown by
Dr. CULVER JAMES.

The patient, aged seventeen, had been under the care of Dr. James for about three months. She had suffered from

occasional earache from early childhood, and had gradually become deaf.

During the last nine months the attacks of earache had been more frequent and more severe, and three months since she felt it necessary to seek advice. She then complained of the pain awaking her from sleep and causing sickness.

On examination there was found slight serous discharge from the right meatus, the membrane thickened, dull, opaque, and drawn inwards, the bright spot absent.

The Eustachian tube was blocked, the mastoid process slightly tender. Hearing was impaired; the watch could not be heard 1 inch from the auricle. There was some nasal obstruction, and small adenoid growths were present.

Air could not be forced into the tympanum without the catheter, which was passed with some difficulty. The air douche gave temporary relief, and was administered daily or every other day.

The meatus was treated with sedative and antiseptic lotions, and the discharge soon ceased. Tonics, especially arsenic, were administered. The membrane soon improved, became clearer, and the bright spot returned. When the air douche was applied in the evening, she was not disturbed at night-time by pain or sickness. The tenderness over the mastoid soon became acute. Dr. James advised an exploratory incision through the periosteum, but the operation was not assented to.

Counter-irritants gave some relief, and on one occasion the application of three leeches was so successful that the tenderness almost disappeared for three days.

Dr. James then advised the removal of the adenoids, but after further consultation it was thought better to encourage regularly the breathing exercises.

The patient had been to the south coast for the previous fortnight, and was not quite so well as when she left London. Up to the time of her going away most of her symptoms had improved, but not so much as might have been wished.

Dr. James pointed out that the mastoid was acutely tender, the membrane still thickened and slightly drawn inwards, and the Eustachian tube completely blocked, and asked for suggestions and advice.

Dr. DUNDAS GRANT considered that the symptoms accorded very exactly with those of sclerosis of the mastoid, formerly known as "mastoid neuralgia," which was a condensing osteitis of that portion of the temporal bone. The nerve fibres became pinched, and severe attacks of pain resulted. He assumed that reflex causes

of neuralgia, such as diseased teeth, had been eliminated, and it seemed very improbable that the condition was a hysterical one. If the administration of tonics, iodide of potassium and chloral failed to give relief, which he thought likely, he would recommend operating on the mastoid process, to the extent first of removing a superficial layer of the bone, and carrying the operative interference still deeper if, when this was done, the bone appeared to be further diseased.

Mr. BARK believed that an exploratory operation should be performed, with a view to radical treatment, in every case where long-standing middle-ear suppuration was accompanied by mastoid tenderness.

Mr. VINACE considered that the inferior meatus of the nose should be invariably opened up, if stenosed, and time allowed for improvement to take place, before the more serious surgical measures, such as deep operation on the mastoid, are justifiable.

Dr. JAKINS advised that a radical mastoid operation should be performed without delay.

The PRESIDENT considered that Dr. Culver James's case would probably benefit much by treatment of the nose.

Case of Meatal Polypus with Intact Membrana Tympani. By Dr. ABERCROMBIE.

F. P——, aged seventeen years, a factory lad, came on Saturday, December 29, 1900, complaining of pain in the right ear of two weeks' duration, and of a "lump" blocking that ear, from which there was a slight discharge. There was also deafness in the right ear, which came on gradually about three months before.

On examination, a large polypus was seen projecting from the right meatus, which was removed by Mr. Nourse (in the absence of Dr. Abercrombie), after which a mass of cholesteatomatous and epidermic material was taken away. Then it was seen that small granulations were projecting from the floor, and the front and back walls of the meatus, about the junction of the bony and cartilaginous portions. The probe struck bare bone on the floor and back-wall, where the granulations were. The granulations were removed with the ring-knife. The membrana tympani appeared to be intact on inspection, and no perforation sound was obtained on inflation. The patient admits having picked his ear with a pin on several occasions, the first time about two months before coming to the hospital. When eight years old, he had an attack of "earache" in the right ear, which lasted for "several days," when something "broke" in the ear, and discharge appeared, with relief to the

pain. In a few days the ear appeared to be quite well again, and it remained well until this present attack began.

Patient is the subject of nasal obstruction from adenoids and turbinal enlargement.

The question is as to the cause of the polypus. Was it the result of traumatism from the picking of the ear with a pin, or did it originate from the mastoid, in which, perhaps, disease remained latent from the first attack nine years ago?

The PRESIDENT showed *A Specimen of an Upper Jaw in which an Epitheliomatous Growth was Filling the Antrum and had invaded the Alveoli.*

The specimen was removed whole, and the upper jaw was complete and intact. The patient was exhibited also, and showed little disfigurement; could talk and swallow comfortably. The site of the jaw looked remarkably clean and healthy.

Dr. DUNDAS GRANT offered his congratulations on the excellent result. He described a case of his own in which the disease, alveolar epithelioma, affected the ethmoidal cells, the floor of the orbit and the antrum, but did not extend into the alveolar process, so that he was able to leave this process and the palate *in situ*, thereby greatly facilitating the patient's swallowing. The operation was effected by the usual incision for the removal of the upper jaw, but it was necessary in addition to make another cut upwards along the inner margin of the orbit, so that the lachrymal bone, the os planum and the adjacent cells might be freely removed. At the junction of the incisions a fistula still remained, and the eyeball had not returned to its normal position. The patient was, however, free from pain, and, although over three months had elapsed, there was no sign of recurrence.

Mr. BARK related a similar case which he had operated on in 1884, and no recurrence had taken place up to a few months ago.

Dr. WYATT WINGRAVE wished to know which kind of epithelioma it was. If the squamous variety, it most likely originated in the mouth, while that starting in the antrum was almost invariably of the alveolar type.

The latter form was more difficult of treatment, since it tended to invade the ethmoid region, as in Dr. Dundas Grant's case, whilst in the case under discussion the nostril was quite free.

A Case of Cyst of the Epiglottis. Shown by Dr. DUNDAS GRANT.

The patient, a girl aged twenty, attended recently at the Central London Throat and Ear Hospital on account of a choking sensation

in the throat and at the back of the nose, which had troubled her for about three weeks. She remarked that it gave her most distress during the night.

On laryngoscopical examination there was a bluish-pink translucent hemispherical swelling, apparently a cyst, on the lingual surface of the right half of the epiglottis. It came into direct contact with the corresponding lobe of the lingual tonsil, which on its part was somewhat hypertrophied; on touching these parts with a probe, it was elicited that they were the site of the disturbance. The patient had also chronic lacunar tonsillitis with the formation of white plugs; the mucous membrane of the pharynx and of the nares was congested, and there was some degree of turbinal enlargement. There was no history of any recent illness, but the patient said she had been subject to much phlegm in the throat for some time. She was obviously of a somewhat neurotic disposition, as apart from this it was improbable that the condition would have given her much discomfort.

The writer brought before the London Laryngological Society some years ago a middle-aged female patient in whom a similar cyst, but of a somewhat larger size, gave rise to very great distress; and Dr. McBride showed a contrasting case in which an enormous cyst in a strong male patient occasioned no discomfort at all. In the author's case the cyst was pulled out by means of Mackenzie's forceps, entire, although its contents had escaped. Complete and lasting relief followed its removal; he proposed to do the same in the case under consideration.

Mr. BARK drew attention to the difference in the severity of the symptoms in these cases, varying, in recorded cases, from complete loss of voice, pain in the throat, loss of taste, and dysphagia, to merely increased desire to swallow, and even the absence of symptoms.

Dr. H. KELSON said he had recently assisted in removing a cyst in this region; it shelled out readily, and there was very little hæmorrhage; it was thought to be connected with the thyro-lingual duct.

A Case of Tertiary Syphilis, with a Sequestrum in the Nasopharynx. Shown by Mr. CHICHELE NOURSE.

The patient, a male, aged fifty-four, complained merely of a gradually increasing deafness of about four years' duration. With the tuning-fork, air conduction on both sides was found to be considerably diminished, and Rinné minus.

On examining the throat, the pharynx was seen to be much

scarred by the remains of former ulceration, the velum being bound down to the back on either side.

The nasal breath was intensely fetid, and in the left nostril, far back, could be seen a dark-green mass.

With the posterior rhinoscopic mirror the same mass could be seen, nearly filling the naso-pharynx and fixed to the sides as well as to the upper part. Attempts to move it caused free hæmorrhage. It consisted apparently of a sequestrum round which calcareous concretion had been deposited, the whole being covered with thick, dark-coloured and fetid secretion.

No specific history could be elicited, but from the appearances described above there could be little doubt as to the nature of the disease.

Since then the fætor had diminished, and a good deal of the concretion had come away; moreover, the sequestrum had become detached above, and was resting on the back part of the floor of the nose. The hinder part of the septum had disappeared.

Mr. Nourse had been rather cautious in his attempts to dislodge the sequestrum, preferring to wait until it might be more nearly detached.

For treatment the patient had had an antiseptic lotion for syringing the nose, and an iodide of potassium and mercury mixture.

Dr. DUNDAS GRANT advised that the sequestrum should be removed with as little delay as possible, for fear of it falling down into the larynx and suffocating the patient. A case had been recorded in which the body of the sphenoid had been separated, and in this way had caused the patient's death.

Case of Aphonia. Shown by the PRESIDENT.

The patient was a private in an infantry battalion in South Africa, who was said to be completely aphonic, making no sound whatever in attempts at phonation. He was wounded in the thigh by a shell at Spion Kop, was invalided home, and returned to duty in three months. When at Bloemfontein he was taken suddenly unconscious, and remained so for three days; he had never spoken since. The larynx was apparently normal, except for some over-vascularity. There was a large lingual tonsil.

The patient had been under the care of many doctors without apparent improvement. The father of the patient had informed the President that when under the influence of drink his son had spoken freely. The President considered the case one of malingering.

Mr. LENNOX BROWNE had no hesitation in confirming the

tentative diagnosis of the President, for, allowing for a certain amount of not unreasonable nervous shock, the fact that the muscles of speech and articulation were paralyzed as well as those of phonation gave absolute evidence of the functional character of the palsy. He recalled to the memory of those of his hospital colleagues present the case of a non-commissioned officer in the Guards, who had been sent by the regimental medical officer to the hospital with exactly similar symptoms to those in the present case, and in whom, though not till after much violence and struggling, voice was entirely restored by a strong faradic current. The speaker believed that these cases represented a by no means uncommon form in soldiers anxious for their discharge.

Dr. DUNDAS GRANT considered that it presented the characters of malingering, but it was only charitable to allow that it might be one of traumatic hysteria.

Dr. WYATT WINGRAVE drew attention to the marked hypertrophy of the ventricular bands and their abrogation of function, a condition so frequently found in prolonged instances of functional aphonia, in which the patient used them instead of the vocal cords. He noticed considerable hypertrophy of the lingual tonsils and adjacent lymphoid elements.

A Case of Osteosarcoma of the Antrum. Previously shown by Dr. TRESILIAN.

Since being shown some eighteen months ago, the child has been operated on by a general surgeon, a large part of the mass removed; but the upper jaw was not removed, and parts of the growth were left untouched. Microscopical investigation shows the growth to be an osteosarcoma. Since the operation the growth has not increased.

Mr. BARK advocated excision of the upper jaw as the only probable chance of a complete operation. The prognosis was grave.

Mr. LENNOX BROWNE and the PRESIDENT agreed with Mr. Bark.

The postponed discussion on Mr. LENNOX BROWNE's cases of epilepsy in relation to adenoids then took place.

Mr. LENNOX BROWNE, having briefly referred to the two cases reported at the previous meeting, mentioned that the removal of adenoids was of service in many other forms of disturbance of cerebral equilibrium which might be attributable to the peripheral irritation caused by adenoids, especially those characterized by more or less convulsive and paroxysmal attacks of rage and violence.

The two points of interest were: First, that the experience of

throat specialists, of the benefit of removal of adenoids in the class of case in question, would appear to be more favourable than that of the neurological expert, who presumably did not attach so much importance to their causal influence, nor to the details of surgical procedure. Secondly—and this was the main feature of interest—that, while large doses of bromide were inert prior to removal of the obstruction, the drug, albeit in very small doses, appeared to be essential to complete subsidence of the peripheral irritation, which was primarily and mainly due to the glandular overgrowth. The subject was, indeed, but one other of the increasing number of examples of the overlapping of specialities, neglect of which leads to only half-cures or complete failures.

The PRESIDENT considered it was an undoubted fact that many cases of epilepsy arose, and were accentuated by, the condition of the nose and naso-pharynx. These cases were not alleviated, because it was not common knowledge, nor was it even suspected by the vast majority of the profession, that such a source of irritation could prevail. He (the President) trusted that prominence would be given to Mr. Browne's remarks.

Given the fact that epilepsy could originate for a certainty from peripheral irritation, say in the bowel, genitals, teeth, or elsewhere, was it not an astounding fact that a part of the body such as the throat and nose, that had to do with every cranial nerve, from the first to the ninth, should be overlooked? Every cranial nerve, from the optic to the hypoglossal, has an intimate association or distribution in the throat and nose.

Dr. DUNDAS GRANT was able to corroborate Mr. Lennox Browne's remarks in every detail. As laryngologist and otologist to the West End Hospital for Nervous Diseases, he had the opportunity of seeing a number of cases of epilepsy, referred to him by his colleagues for the examination and treatment of throat affections. In a number of cases, subsequent records showed considerable diminution in the number and severity of fits, increased effect of smaller doses of bromide of potassium, and even complete recovery. He had on that very morning seen a well-developed young man on whom he had operated at the West End Hospital several years ago, complete recovery from the epilepsy having resulted. A similar result ensued in a case of empyema of both maxillary antra. In the same way, he had seen the treatment of suppurative affections of the middle ear followed by benefit in cases of epilepsy. For instance, a young man who had been injured by a kick from a horse on the mastoid region, requiring incomplete mastoid operation, was subject to epileptic fits. When he came under the author's

observation, the examination of the ear produced at once a well-marked epileptic fit; he was then subjected to a complete radical mastoid operation, and a year later he reported that he had been free from attacks ever since. In another case, a young girl suffering from severe epilepsy and chronic suppuration of the middle ear experienced very great diminution in the number and severity of the attacks when the "alcohol treatment" for the middle ear was instituted; there was in her ear a slight cholesteatomatous condition, and it was very striking to hear how convinced she was that, whereas watery drops produced confusion and discomfort, the instillation of alcohol drops at once "cleared her head." The conditions before mentioned were only a few out of the numerous possible peripheral sources of irritation, and their removal was not always followed by the same happy results. They were, however, sufficiently numerous and sufficiently marked to claim the careful attention of all those who undertook the treatment of epilepsy.

Abstracts.

MOUTH, Etc.

Lambret.—*Branchial Fistula in the Neck.* "L'Echo Méd. du Nord.," August 26, 1900.

The patient was a man fifty-seven years old. In January he noticed a small swelling below the angle of the jaw in the left side of the neck. This increased to the size of a walnut; being taken for an abscess, it was incised and drained, but would not heal. Fluid injected at the outer end entered the mouth just in front of the base of the anterior pillar. Treatment by injections, by curetting, etc., had not been successful.

Arthur J. Hutchison.

NOSE, Etc.

Hamilton, W. D.—*Two Cases of Growths in the Frontal Sinus; Operation; Recovery.* "Journ. Amer. Med. Assoc.," January 26, 1901.

The literature on this subject is scant. Kikuze in 1888 published a list of fifty-four cases in which tumours had been removed from the frontal sinus, of whom eighteen died of sepsis. No tabulated list for the last twelve years could be found. The author narrates two cases, the first of which, a man of thirty-six, was struck on the forehead with a stick at fourteen years of age, leaving a swelling which was opened and a quantity of pus evacuated. It never entirely disappeared, but continued to increase up to the time of admission to the hospital. He had recently had headache and vertigo. A swelling above the line of

the eyebrows measured $3\frac{1}{2}$ inches transversely, and $2\frac{1}{4}$ inches vertically. It was hard to the touch, but in places would give a crackling sensation. The tumour was very hard, like ivory, and was removed with difficulty. It weighed $2\frac{1}{2}$ ounces, and was found to be an osteoma. Healing was normal, and there is no sign of recurrence.

The other case, a man of twenty-seven years, had good health until a few months before. He first noticed a protrusion on the forehead three years before, and it had increased steadily in size. He had double exophthalmos and divergence. He had a double optic neuritis and was unable to read. Upon operating, an osteoma was found, filling most of the frontal sinuses, and so located as to obstruct drainage into the infundibulum. As a result, there was retention of mucus and pus with a number of polypi. The roofs of both orbits were partially destroyed, and the secretions had pushed the dura back so far as the finger could reach the petrous portion of the mastoid. Improvement was very marked after operation, the exophthalmos disappearing, and vision returning to nearly normal.

Oscar Dodd.

Kraus.—*A New Instrument for Posterior Rhinoscopy.* "Annal. des Mal. de l'Or.," January, 1900.

This instrument consists of a tongue-depressor with a simple rhinoscopic mirror attached. The stem of an ordinary mirror slides in a tube affixed to the upper surface of the mirror, an arrangement which is simple and admits of adjustment to particular cases. The edges of the blade of the tongue-depressor are slightly elevated in order to avoid unnecessary irritation of the tongue in rotating the instrument for examination of the lateral wall. As one hand only is needed, post-nasal operations can be carried out without the help of an assistant.

Ernest Waggett.

LARYNX.

Bokay, Johann von (Buda-Pesth).—*Traumatism during Intubation; its Prevention and Treatment.* "Journ. Amer. Med. Assoc.," January 26, 1901.

The author states that he has operated on and observed more than 1,200 cases of intubation since 1898, and has noted traumatism in a series of cases. It may occur during the introduction of the tube, while it is in place, or when withdrawn. There may be simply denuding of the mucous membrane, or a false passage may be made. When it is necessary to introduce the tube frequently, or there is much subglottic swelling, the traumatism may be serious in the pathological condition of diphtheria. False passages were reported as early as 1887, and a number of cases have been reported since by different men. Among the 1,200 cases he had, four were fatal. They were in cases where repeated insertion of the tube was necessary, and where the symptoms were urgent, requiring haste. They were all in the ventricle of the larynx.

Oscar Dodd.

Roger and Garnier.—*Experimental Thyroid Infections.* "La Presse Méd.," August 9, 1900.

The authors have investigated the effects of submitting the thyroid in rabbits and guinea-pigs to direct infection with cultures of staphy-

lococcus and of Eberth's bacillus. A ligature is applied to the carotid just above the point where the thyroid artery is given off, and the culture is injected into the carotid below the ligature. It is therefore carried directly to the gland. The results obtained depend on the nature of the micro-organism, the virulence of the culture, and the rapidity of infection. The effects produced by injecting a given culture into one carotid artery differ from those produced by injecting the same quantity of the same culture into both carotids. With attenuated cultures of staphylococcus interstitial lesions are obtained. These may consist in simple arteritis or in a more or less extensive accumulation of leucocytes in the tissues, the proper epithelial cells of the parenchyma being comparatively little affected. On the other hand, with more virulent cultures the epithelial elements are more and the interstitial tissue less affected. In one case, in which the rabbit lived for three months, the right lobe of the thyroid grew to a great size, and appeared like a sarcoma. Under the microscope it was found to consist of masses of epithelial cells with no definite arrangement. There was no trace of lobule, vesicle, or of colloid substance. Injection of typhoid bacillus produced two types of inflammation: first, an acute hemorrhagic parenchymatous inflammation; secondly, a more chronic interstitial inflammation, resulting in sclerosis of the gland.

Arthur J. Hutchison.

Trumpp, J. (Munich).—*Intubation in Private Practice, and its Perfection.* "Journ. Amer. Med. Assoc.," January 26, 1901.

Intubation was received in Europe with great reserve, as it was considered hard to perform and dangerous. Experience has shown that the apprehensions were exaggerated, that it is not more dangerous than tracheotomy, and its sphere ought not to be limited to the hospital. In the summer of 1899 the author of this article wrote to eighty-nine European and American physicians, and of these fifty-five thought intubation in private practice just as useful as in clinical service; twenty had no personal experience, and fourteen decidedly opposed its use in private practice. The reasons given by the latter were that the danger of after-treatment would be greater, and that the patient should be under surveillance longer than would be possible in private practice. He lays down the following rules for guidance: The physician should not proceed to operate until he has had sufficient previous practice on animals and cadavers to become proficient. He should explain the two methods of operation to the patients, and allow them to decide which they prefer, tracheotomy or intubation. Careful supervision should be given the patient as long as there is danger, and he should only leave the patient for short intervals with a competent nurse. Antitoxin should be used as early as possible, so as to cut short the treatment and the length of time the patient should wear a tube. The technique makes no difference if the tube is inserted so as not to injure the mucous membrane of the larynx. Clinical experience only will guide as to the size of the tube to wear, but as large a tube as possible, other things being equal, is the best. As to the form of the tube, he considers the rubber tubes last devised by O'Dwyer as the best. They are lighter, cause less trouble in deglutition, and there is less danger of detubation and decubitus. He suggested the modification of the instruments by making the handle of the intubator of springy material, as it would lessen the danger of traumatism. The rubber tubes should be more round on the lower end, like the metal

ones, and he mentions the fact cited by Bauer, that the vertical axis of the trachea in children deviates backward, and the tube should be curved to conform to it.

Oscar Dodd.

E A R.

Albert H. Andrews.—*A New Objective Test for Mastoiditis, with Report of Case.* "Journ. Amer. Med. Assoc.," January 26, 1901.

A small-belled stethoscope is used on the tip of the mastoid, while the handle of a vibrating tuning-fork is held over the mastoid antrum. It is found that when the mastoid is filled with pus or granulations the sound waves are transmitted to the ears of the examiner more distinctly than on the normal side. Care must be taken not to stretch the skin between the stethoscope and handles of the tuning-fork. He has examined a number of persons, and has found no perceptible difference in the normal cases; but in those where mastoid trouble was present the affected mastoid transmitted the sounds with greater force than did the mastoid of the opposite side. In the case reported, a cholesteatomatous mass filled the attic and upper part of the middle ear. The tuning-fork was heard on this side for thirty seconds, while over the normal side it was heard only sixteen seconds. He uses a C 512 tuning-fork so made as to vibrate about thirty-five seconds, and a stethoscope with a $\frac{5}{8}$ -inch bell.

Oscar Dodd.

BOOKS RECEIVED.

Diseases of the Nose and Throat. By F. DE HAVILLAND HALL, M.D., F.R.C.P. Lond., and HERBERT TILLEY, M.D., B.S. Lond., F.R.C.S. Eng. Second edition, with two coloured plates and 80 illustrations. London: H. K. Lewis. Price 10s. 6d.

Descriptive Catalogue of the Museum of the Sixth International Otological Congress. Compiled and edited by W. JOHNSON HORNE and ARTHUR H. CHEATLE. Revised edition. London: J. and A. Churchill, 1900. Price 10s.

The Asphyxia Factor in Anæsthesia. By H. B. GARDNER, M.R.C.S. Eng., L.R.C.P. Lond. London: Baillière, Tindall and Cox. Price 3s.

The Year-Book of the Nose, Throat and Ear. Nose and Throat by C. P. HEAD, M.D., and Ear by A. H. ANDREWS, M.D. Chicago: The Year-Book Publishers. Price \$2.

NOTICE.

The tenth meeting of the German Otological Society will be held this year on May 24 and 25 in Breslau. Titles and subjects of communications and demonstrations (which must not have been published elsewhere) should be forwarded by April 30 to the secretary, Dr. Arthur Hartmann, 8, Roonstr., Berlin.

It is intended to hold in connection with the meeting an exhibition of preparations, etc., for the teaching of otology and rhinology. Contributions for the exhibition are to be directed to Professor Kümmel, 53, Thiergartenstr., Breslau.

THE JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

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THE TREATMENT OF DEVIATIONS OF THE NASAL SEPTUM.*

BY DR. E. J. MOURE,

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DEVIATIONS of the nasal septum are among the affections for which numerous remedies have been proposed. Some operators limit themselves purely and simply to perforating the fibro-cartilage (Blandin); others endeavour to give the septum a better shape by the aid of various operations, of which the best known and most universally adopted at the present day is that of Asch. I have no wish to describe here the method recommended by this author, who limits himself, as we know, to making a crucial incision in the centre of the deviation, and the four segments thus made are afterwards retained in the nasal fossa away from the deviation by the aid of special tubes introduced on each side.†

This operation of Asch, which appears to have been attended with very fair success, has nevertheless the inconvenience of inapplicability to deviations of the inferior portion; further, the ebonite tube, badly perforated, allows the dried mucus which accumulates in the nose to escape with difficulty. It makes a bad drain; finally, it is often difficult to introduce.

Further, according to similar directions of Dr. Thorner (who

* Communication made to the Thirteenth International Congress of Medicine (Section of Laryngology), August, 1900. Translated by Macleod Yearsley, F.R.C.S.

† Dr. Thorner has, however, published in the same review a very interesting article on the same operation and on the results obtained (see *Review*, No. 21, May 26, 1900, p. 609).

has written at length on this operation), it is necessary, twenty-four hours after the operation, which is done under chloroform, to remove the first tube passed on the side opposite to the deviation, and forty-eight hours later that which has been passed on the deflected side. At the same time, it is necessary to cleanse the nasal fossa, and then replace the tube, which, as this author warns us, is sufficiently painful.

One can easily understand how painful the introduction of this tube must be forty-eight hours after the operation over a surface still raw, and often a path for infection. The introduction may be very difficult at this time, considering the shape of Asch's tube, and it may also start hæmorrhage, which is always very disagreeable, and at times sufficiently free to require temporary plugging. If it is necessary to remove the tube every twenty-four, or at least every forty-eight hours to cleanse the nasal fossæ, one must look upon the operation as a very troublesome one.

It is in consequence of these inconveniences that I have tried for several years to remedy deformities of the nasal septum by a method which differs from the preceding ones in operative technique and in the mode of correction employed. Instead of perforating the nasal septum by cutting it over the deviated part, I operate according to the exigencies of the case. To be more precise, let us examine successively the different types with which the surgeon may be commonly brought into contact.

1. *There exists with the deviation a spur or a thickening of the fibro-cartilage.* This is the most common. In this case the first thing to be done is to remove the cartilaginous angle, to plane, as it were, the septum, so that we have to deal with a simple deviation. To obtain this result I operate in the following way:

Discarding the drills, gouges, saws, even electrolysis, which I have hitherto extolled, as well as the methods usually adopted for the resection of spurs, I simply remove the latter by the aid of an instrument specially constructed for the purpose, which, generally in one slice, removes the projecting spur in the space of a few seconds, without pain to the patient (who is under 'cocain), and without any loss of substance on the other side—that is to say, without perforating the septum.

This instrument consists of a much-elongated ring, whose ellipsoidal extremity has two opposed cutting edges. These blades are concave externally, and very convex on the other side, meeting at an acute angle at the part destined for cutting the fibro-cartilage. The lower portion of the ring is blunt, so that when the spur is well engaged in the lumen and strong traction made, the projection is

forced advantageously between the blades and is cut very close to the base.

The appended drawing (Fig. 1) shows how the cartilaginous projection is placed in the lumen of the instrument, and the latter drawn quickly forwards. Owing to the two cutting blades being placed opposite to each other obliquely, the section is made with the least effort and with great facility. The instrument is constructed in such a fashion as to catch the spur close to its base, and to cut it quite at its point of insertion.

When the deviation is sufficiently considerable to obstruct the

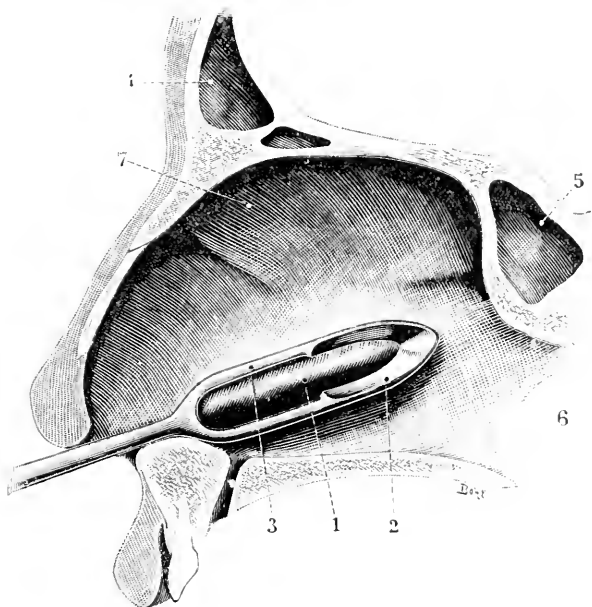


FIG. 1.—THE OSTEOTOME *in situ*.

- 1, Spur of the septum grasped in the lumen of the instrument; 2, cutting blade; 3, blunt part acting as ring guide; 4, frontal sinus; 5, sphenoidal sinus; 6, posterior naso-pharyngeal edge of the vomer; 7, perpendicular plate of the ethmoid.

whole nasal fossa and press the ala of the nose, so that it is impossible to pass the osteotome to engage the projecting part, I usually begin by establishing in the thickness of the deviated fibro-cartilage one or two narrow channels by the aid of a galvano-cautery point, which I plunge parallel to the septum, from without inwards and from before backwards. This preliminary passage made, I remove with cutting pliers all the part situated externally to the region thus hollowed out. This resection done, I find that I have made an opening sufficient to permit the introduction of my

osteotome, with which I shave the surface of attachment and plane it, just as if it were an ordinary deviation (Fig. 2).

I generally, at the same time that I remove the cartilage, stop the hæmorrhage with a galvano-cautery knife placed over the raw surface.

This method of operating has not only the advantage of avoiding immediate plugging, but it equally removes the necessity for later dressings, the cut surface heals as a rule with great rapidity by a pseudo-membranous exudate which places the wound safe from

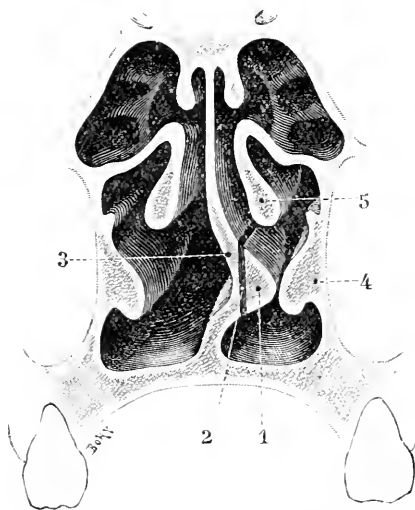


FIG. 2.—VERTICAL TRANSVERSE SECTION OF THE MIDDLE PART OF THE NASAL FOSSA IN THE PLANE OF THE FIRST MOLAR.

1, Septal spur; 2, line of section made by the osteotome; 3, deviated part of the septum; 4, inferior turbinal; 5, middle turbinal.

infection, and post-operative treatment is peculiarly simplified. As a rule, I do not further touch the nasal fossa, contenting myself simply with keeping the patient at rest for twenty-four to forty-eight hours.

On the contrary, when the wound tends to heal by suppuration, it will be useful to cleanse the latter by means of injections gently made through both nasal fossæ (nasal douche). These injections should be made every morning. One is rarely obliged to practise them twice a day. It is essential to remember—and I lay stress on this point—that it is far better, if possible, to omit any further treatment, thus avoiding the secondary hæmorrhages, and the wound infections produced by the passage of ointment or of gauze

more or less septic into the nasal cavity. In this way one also avoids the pain that such dressings are safe to cause.

2. There is present *with the deviation not only a spur, but a luxation of the fibro-cartilage at the antero-inferior part of the septum*, and this latter presents in one of the nostrils in the form of a thin border, projecting the mucous membrane at the lower part of the septum, generally on the opposite side to the deviation (see Figs. 3, 4). In this instance I begin first by resecting the projecting part of the fibro-cartilage, operating in the following manner:

After cleansing and asepticizing the region as seems expedient

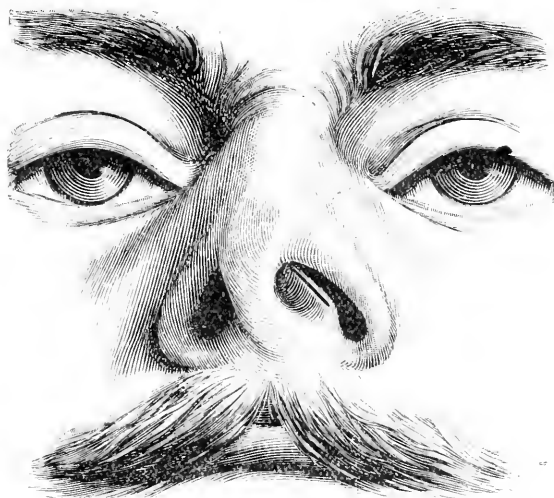


FIG. 3.—LUXATION OF ANTERO-INFERIOR PART OF THE FIBRO-CARTILAGE TOWARDS THE LEFT.

The black line indicates the line of section made through skin and mucous membrane to bare the fibro-cartilage before resecting it.

—that is to say, after washing the nose, upper lip, cheek and chin as one would do in an ordinary operation (soap, alcohol and sublimate or cyanide)—I incise the mucous membrane situated at the extremity of the fibro-cartilage with a bistoury (Fig. 3); and then detach it over the lateral parts as far as possible—that is to say, for from $\frac{1}{2}$ to 1 centimetre in depth and to each side. The fibro-cartilage thus bared is next resected with scissors, or, better still, with a bistoury. This done, I reunite the cut mucous membrane by one or two sutures, according to the exigencies of the case, and generally all is healed in from eight to ten days without any other dressing than a little steresol applied over the wound. In this procedure it is necessary to be careful to resect the fibro-

cartilage sufficiently well forward in the nasal fossa, as there is always a tendency to leave a considerable portion which still juts out below the septum. When the operation is finished and the patient has recovered from this first procedure, the spur only remains to be removed in the way already described above.

3. When these wounds have healed and cicatrization is completed—that is to say, in about a month—the mucous membrane being regenerated on the surface, I attack the deviation itself.

Eight days before operating for its correction I am in the habit of spraying the nasal fossæ night and morning with the following solution :

Oleate of cocain	...	...	0·15 centigrammes
Powdered menthol	...	...	0·25 ,,
Thymol	...	...	0·5 ,,
Oil of vaseline	...	...	45·0 grammes



FIG. 4.—DIAGRAM OF LUXATED FIBRO-CARTILAGE, MAKING AN ANGLE IN THE RIGHT NASAL FOSSA (LEFT SIDE OF THE FIGURE), AND CAUSING A CONTRARY CONCAVITY WELL MARKED ON THE SIDE OF THE OPPOSITE NASAL FOSSA.

The thickness of the fibro-cartilage at the level of the most deviated part is distinctly seen in the diagram.

At the time of operating, after having made the anterior part of the nose aseptic, the cavity of the nose is cleansed as far as possible with a boracic nasal douche. The mucous membrane is next well cocainized in the anterior third of the septum and turbinals with a solution of cocain; 1 in 10, applied with a tampon of cotton-wool. The patient is seated opposite to me, the head held behind by an assistant, and the fibro-cartilage is cut, without further anæsthesia, in the following manner :

Taking a pair of curved scissors, made on the principle of Asch's shears, scissors which recall by their shape those used by Dr. Ajutolo (Fig. 5), I introduce the bent blades one into each nostril, so as to place the septum between the two cutting edges. The cutting part of the instrument having been introduced as far back

as possible along the base of the septum (see Fig. 6), which can be done owing to the gap that exists at the base of the scissors, I cut the septum bit by bit along the floor of the nasal fossa, as close



FIG. 5.—CURVED SCISSORS FOR CUTTING THE FIBRO-CARTILAGE.
(DR. MOURE'S MODEL.)

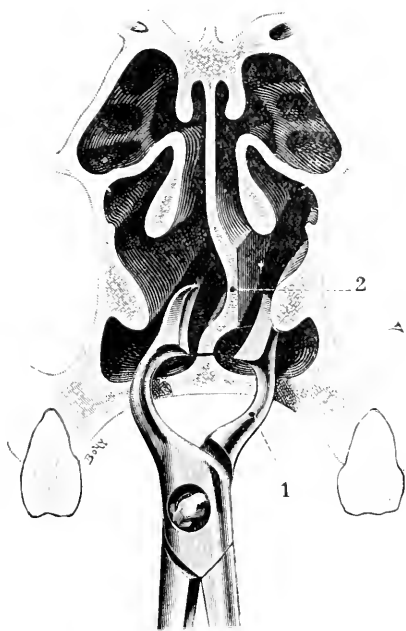


FIG. 6.—VERTICAL TRANSVERSE SECTION OF THE MIDDLE OF THE NASAL FOSSA IN THE PLANE OF THE FIRST MOLAR (ANTERIOR ASPECT).

1. Scissors seen in position at the floor of the nasal fossa (the black line shows where the cut is made); 2, deviated part of the septum from which the spur has been removed.

as possible to its inferior insertion. This incision should measure about 2 or 3 centimetres long (see Fig. 7). Then carrying my instrument, without withdrawing it from the nasal fossa, towards the superior part (see Fig. 7) *for the length of the nasal ridge*, I make

a second incision at this level, making an acute angle with the first, and cutting also right through the fibro-cartilage. It is easy to be sure when the section is complete, as a kind of characteristic crack can be well heard, indicating that the end in view has been attained.

I then have a movable fragment which is held in front by the anterior part of the base of the septum, which has been left untouched towards the tip of the nose, and behind by the perpendicular plate of the ethmoid and the vomer. I can easily, by passing through my incisions, enter from one nasal fossa to the other, for the fragment

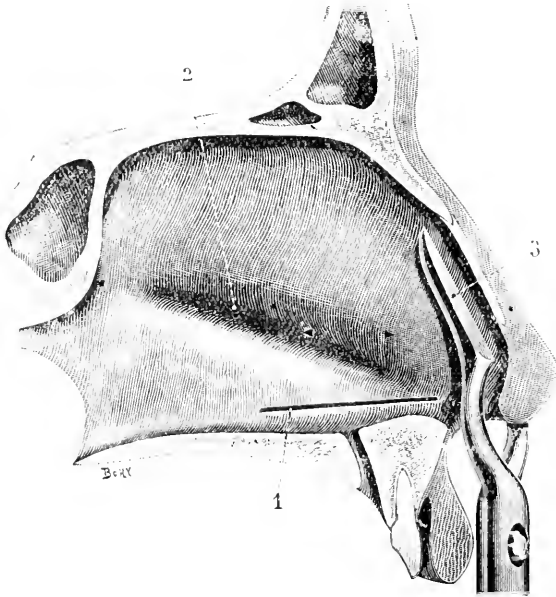


FIG. 7.—VERTICAL ANTERO-POSTERIOR SECTION OF THE NASAL FOSSA. SHOWING THE SEPTUM.

- 1, Line of section at the level of the floor ; 2, deviated part of the septum seen from its concave aspect ; 3, scissors placed to make the second incision at the level of the nasal bones.

is absolutely free at its inferior and superior parts. This first step finished, I take a special tube dilator (see Fig. 8), formed of two parallel blades, of which the outer is fixed and rigid, whilst the internal one is much longer, and made of malleable metal, which I can model according to my fancy. I introduce this dilator *on the side of the deviation*, the fixed part turned outwards towards the inferior turbinate, on which it lodges, and the malleable part towards the deviation.

There are, as can be seen in the attached figures (Figs. 8, 9, 10), two tubes, a right and a left, which are easily distinguished by the

obliquity of the anterior part, which allows the tube to be introduced into the nasal fossa, and to mould itself easily against the ala of the nose, of which the edge helps to keep it in position. The tube being thus introduced, I model the soft part to the septum by the help of a forceps introduced with my dilator (see Fig. 10). This

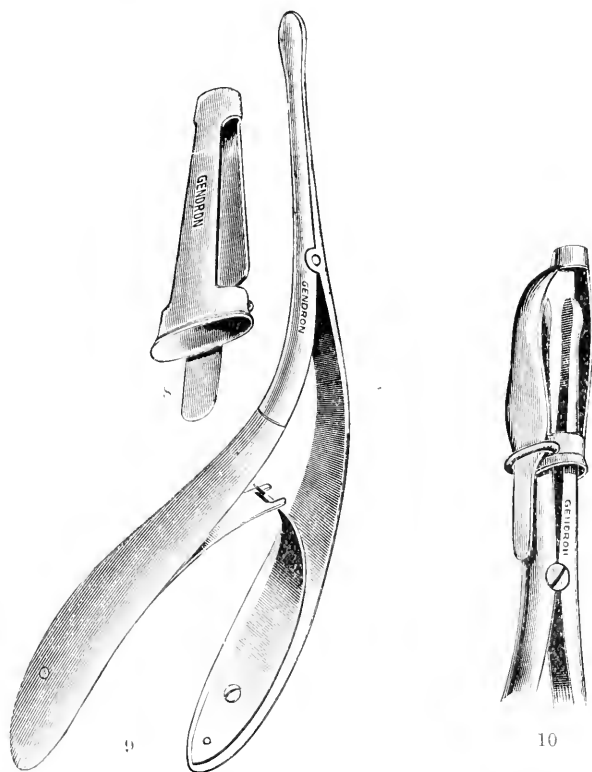


FIG. 8.—METALLIC TUBE WITH RIGID WALL TO THE LEFT, SOFT AND FLEXIBLE TO THE RIGHT, FOR INTRODUCTION ON THE SIDE OF THE DEVIATION.

The portion which depends is intended to be recurved at the entrance of the nostril, so as to ensure perfect maintenance of the instrument in place.

FIG. 9.—DILATING FORCEPS TO MOULD THE TUBE AGAINST THE DEVIATED CARTILAGE.

FIG. 10.—FORCEPS PLACED INSIDE THE TUBE AND MAKING THE DESIRED MOULDING.

instrument allows me to give my soft blade the form and position I wish to see taken by the septum in the new position in which I have placed it. The tube, perfectly buried, is held in the interior of the nose, on the one hand by the moulding of the septum, on the other by its edge, which rests on the wall of the nasal ala.

The tube is left in this position for seven or eight days. At first

I thought it necessary to remove it after only three or four days, but the results obtained were not so favourable as when I left it *in situ* for at least eight days.

This method has the advantage of being extremely rapid; it takes scarcely more than a few minutes to perform. It is not attended with much hæmorrhage, for I have never yet had to plug, nor have I met with the least accident.

The only inconvenience is the pain which the inflammatory reaction following the operation produces during the first forty-

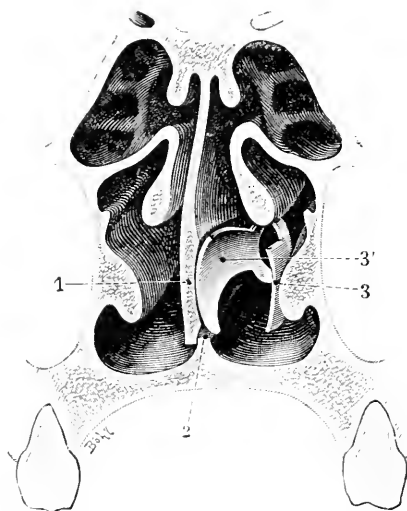


FIG. 11.—VERTICAL TRANSVERSE SECTION OF THE NASAL FOSSA (ANTERIOR ASPECT).

In this figure are seen: 1, Cut fibro-cartilage over-riding (2) the floor of the nasal fossa from which it has been detached; 3 and 3', the tube introduced into the interior of the nose, moulding the septum on the side 3', and resting by its opposite side (3) on the inferior turbinal.

eight hours. To meet this trouble, I advise my patients to keep their rooms during the first days, and to very frequently bathe the nose in warm boiled boracic solution, which takes the place of wet dressings. This method of operating has the advantage over that of Asch in not obliging the operator to remove the tube placed in the interior of the nose after twenty-four or forty-eight hours, at the risk of seeing the products of secretion retained in this region, and possibly of an infection of the wound. Further, the orifice of exit of the two blades, simply joined at their anterior and posterior parts, is such that perfect drainage is assured.

After two or three days of this treatment the patient can

generally resume his occupation, scarcely feeling more pain about his nostril than that due to a foreign body. But here two things may happen: either the cicatrization goes on in a normal manner, with the formation of little scabs which dry on the raw surface; or there may be a thick secretion having a tendency to become purulent, or to accumulate in the interior of the nasal fossa which has been operated upon. In the latter case it is best to wash, at least twice a day, with boiled boracic lotion, so as to remove the accumulation of secretion in the interior of the nose and make the two nasal fossæ very easily permeable. If there is neither secretion nor suppuration it is better still, after the first forty-eight hours, not to use any local treatment, and to limit one's self to removing dry secretions every day, or every two days, with gauze introduced with bent forceps. Needless to say, both gauze and instruments must be aseptic.

As I have said above, I remove the apparatus on the eighth day, and generally the septum is perfectly corrected, as is also the external shape of the nose. I have also very often found in several instances that patients breathe better on the side operated upon than on that where formerly existed the concave part of the deviation. One should not decide as to the amount of improvement until a month has elapsed, as then parts have returned to the normal condition.

I consider that there is a great advantage in having the soft blade of the instrument as large as possible, whereby it occupies the greatest possible surface level with the septum, which it aims at correcting. Nevertheless, it is well known that one is limited in the greater number of cases, since this soft part cannot be larger than the entrance of the nostrils through which it has to pass.

It may seem difficult to correct the fibro-cartilage in the manner I have described above, when the deviated part, placed vertically, would be too large for the new position in which I place it. I protest that I have never met with this inconvenience. A similar thing ought also to occur with Asch's operation, but those who have performed it never complain of such an occurrence. However, as the latter demonstrated in his article on the subject, the loss of length undergone by the deviated cartilage can be perfectly explained by the overriding of the two parts of the cut septum. Nevertheless, if in any particular case the septum, once corrected, were really too large to fill up the space, it would be very easy to resect a portion of its inferior part by making in the portion above the floor a resection by a parallel incision to the first cut several millimetres above. Thus the height of the fibro-cartilage will be

diminished and the inconvenience will be done away with, as I have pointed out.

The operation which I uphold I have already employed for several years, mostly with success, especially in adults. In children the definite result has been less brilliant, either because they have not tolerated the apparatus, or because they have been too restless during the operation, or because the septum, not completely developed at this age, has continued to grow deformed as the children grow older. I believe, however, as I have had occasion to point out before, that it is not very wise to touch the septum of children before their development is a little nearer completion—that is to say, after the age of sixteen or eighteen years.

Surgeons who have had occasion to practise the method of Asch can easily recognise the great facility which there is in the method of correction which I have described. In fact, once the operator is used to practising this procedure, it takes scarcely a few minutes to make the two incisions, put in the tube, and mould the septum to the desired position. Cocain very largely suffices to obtain a perfect anæsthesia and render the operation thoroughly painless. If any painful symptoms occur, they are rather the consequence of the presence of the tube in the nose than of the performance of the operation itself. It must be seen that these inconveniences cannot be eliminated, even when chloroform is used.

Finally, the hæmorrhage, of which I have already spoken in the course of this paper, is so slight that it may be entirely neglected.

BRANCHIAL CYSTS AND FISTULÆ.

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As a result of the complex developmental processes requisite to the formation of the organs arising in the neck segment of the embryo, a multitude of malformations are rendered possible. The formation of the branchial arches and associated clefts, or more properly furrows, and the fact that at the bottom of the furrows, internally as well as externally, the epithelium of the entoderm and ectoderm becomes contiguous, considered with possible errors at the anterior median junction of the projected developing columns, such as failure of median coalescence, render it at once apparent that all

* Read before the Philadelphia Pathological Society, January 10, 1901. For this report we are indebted to the *Philadelphia Medical Journal*.

sorts of malformations or arrests in development may result. Such more or less complete persistence into extra-uterine life of conditions normally entirely foetal may be manifested by almost any degree of abnormality, from fissure of the entire neck to trivial fistulæ, or from absence of more or less of the œsophagus, lung, or other structure normally derived from the foregut, to the persistence of fistulæ (often of capillary dimension*), blind sacs or cyst accumulations, due to external and internal closure of canals without coalescence of intermediate tracts. I shall not attempt to go into the developmental processes concerned in the formation of the branchial clefts, as such information is attainable in any of the current works on embryology.

Hunezowski² (1789) reported two cases of congenital cervical fistulæ; Dzondi³ (1829) called them tracheal fistulæ, and Ascher-son⁴ demonstrated their pharyngeal connection. Heusinger¹ reported two cases, and gave a table of cases, forty-six. In his inaugural thesis (Paris, 1877) and later, Cusset⁵ gives with considerable detail the result of his studies on the subject. Guzman's⁶ thesis in 1886 and Bland Sutton's⁷ work on tumours should also be consulted. Senn⁸ discusses branchial cysts under teratomata. Recently Frederick Shimanek⁹ reported cases of branchiogenic carcinoma, and reviewed the literature of malignant disease arising in these abnormal cavities.

With regard to the classification of branchial cysts much diversity of opinion is found. Fevrier¹⁰ speaks of median and lateral cysts. Depending upon their proximity to the surface, the cysts are spoken of as superficial or deep. As it is not always possible to determine accurately from which cleft the cyst originated, the proposition to base the classification upon the embryologic origin of the defect can be scarcely regarded as satisfactory. Less satisfactory probably is the attempt to subdivide these cysts according to the contents, as the latter must be materially influenced by the presence of the inflammation, hæmorrhage and infection, as well as its source; similarly situated and genetically identical cysts may contain dissimilar materials.

Based, however, upon the hypothesis that such a classification is justifiable, such cysts have been called atheromatous (branchial dermoids), mucous, serous and hematocysts. As none of these cysts are primarily blood-cysts, it is probable that the last-named subdivision is hardly justifiable. In Marsh's¹¹ case the cyst contained a gelatinous material.

* In one of Heusinger's cases a thick whisker could be passed into the opening.

It has been proposed to name these cysts according to their anatomic position in the adult. From this point of view such cysts are called auricular or auditory, parotid, submaxillary, sublingual, pharyngeal, tracheal, etc. If carried to its legitimate conclusion, such a classification would be scarcely consistent, as we would have substernal, sternocleidomastoid and other anatomic subdivisions that would endanger our losing sight of the embryologic origin. Although possessing many disadvantages, the classification based upon the character of the cyst wall, taken in connection with the origin of the process, possesses many advantages. This would at once subdivide the entire group into two sub-groups, one in which the wall showed to a varying degree the histologic characters of the skin, and which would merit the name branchial dermoid, and the other in which the epithelial lining showed more or less striking resemblance to the mucosa lining the mouth, pharynx or respiratory tract. Cysts of the latter type would be called mucous branchial cysts. While considering the subject of classification, it is well to remember that the branchial cyst is but one type of a malformation that may be manifested by at least four pathologic possibilities: (1) Branchial fistulæ, canals extending from the external surface to one of the muco-membranous tubes or cavities, such as the pharynx, larynx, etc. (2) Where the external opening has been closed, a blind fistula, pouch or tract, with its internal opening retained, results. (3) An external fistula, in which the pharyngeal, laryngeal or other internal orifice has been closed while the external opening persists. (4) Cysts like that observed in the case reported, in which both internal and external orifices have been obliterated, giving rise to a closed cavity, the wall of which possesses an epithelial covering. In the experience of Trelat,¹² fistulous openings are seven times as common as true cysts.

As already indicated, the structure of the wall depends to a certain extent upon the type of tissue that it imitates. In branchial cysts of the dermoid type the wall does not differ from that found in other dermoids, except from the almost constant presence of lymphoid elements in the extradermal layer. This lymphoid layer may be scanty, consisting of a few aggregations of lymphoid cells scattered here and there, or such agminations of lymphoid tissue as to constitute distinct nodes. While it is true that other dermoids may occasionally possess more or less lymphoid tissue, it is very rare to find such accumulated masses as are observed in the dermoids of the type at present under consideration. In the branchial cysts imitating the mucous membrane in the character of the cyst wall the condition is practically always that observed in

the case here reported. In a small number of cases the lining has been composed of cylindrical epithelium, rarely of the tall variety, and only exceptionally ciliated. Where the epithelium has been subjected to considerable internal pressure it may be flattened, of a low columnar (cuboidal) type, or less frequently quite resembling squamous epithelium. In only exceptional instances is it simple, usually stratified, the number of layers not uniform in different areas of the same cyst wall, and not infrequently showing marked morphologic peculiarities in different areas of the same lining. When stratified the genetic layer shows more or less tendency toward a distinctly columnar type. It is not probable that epithelium is ever absent, and the only reported case that I have been able to find in which it was sought and not found is that recorded by G. Broesike,¹³ but as the specimen was not studied in the fresh condition the absence of demonstrable epithelium is not surprising. The muscularis mucosa may be demonstrated with difficulty, or it may be, on the other hand, quite conspicuous. Sometimes it is composed of a scattered layer of smooth muscle cells, abundant at points, irregularly scant in other areas, and rarely arranged as a continuous membrane. Sometimes this layer is in immediate apposition with a firm connective-tissue stratum composed of fully-formed fibrous tissue, in which may be found numerous leucocytes, usually of the lymphoid type. This fibrous tissue merges into the loose connective tissue, by which the cyst is attached to neighbouring structures. Elastic fibres are present in the case reported. Adjacent to the fibrous tissue, and, when it is absent, adjacent to the muscularis mucosa, could be found a varying amount of lymphoid tissue. Sometimes this lymphoid tissue is in type and arrangement a more or less accurate reproduction of the structure of the tonsil. In other instances there is a lawless aggregation of lymphoid elements, with a scant reticulum scattered along the submucosa at irregular intervals and in various-sized aggregations.

A number of observers, Cusset,⁵ Roth,¹⁴ Monad and Dubar,¹⁵ and Guzman,⁶ have called attention to the presence of glands in the walls of branchial cysts. These glands may be of the serous or mucous type, and show such aggregations as are found in the pharynx and œsophagus of lower animals; and though less abundant in man, such glands may be distended by secretion, constituting true cysts in the primary cyst wall, or possess patulous ducts communicating with the general cyst cavity. Commonly the glands are not abundant, and apparently may be absent or overlooked. The cyst wall may be uniform and quite smooth, or it may be

irregular, as in the case reported, of varying thickness, depending upon the amount of lymphoid and fibrous tissues rather than upon the thickness of the epithelial layers.

Sometimes the cyst extends in finger-like projections between the muscles, great vessels, and nerves of the neck, or behind the hyoid bone, or downward behind the sternum, or along the course of the auditory canal, rendering total ablation sometimes quite difficult, if not impossible. Sometimes the tumour projects into the pharynx or œsophagus, or passes posteriorly to that structure, or between the œsophagus and trachea or larynx; and while presenting superficially as a rather simple and readily accessible mass, it may at operation present unexpected difficulties.

The communication of blind or open fistulæ with the air-passages may give rise to air-sacs; those sacs, possessing internal openings into the trachea, may present the features of that rare condition variously termed "aerial goitre," "aerial bronchocele," "tracheocele," and "hernia of the trachea." Stuart Eldridge¹⁶ reported one such case, and collected the literature bearing upon the subject. I gather from a perusal of his paper that he believed it quite possible for the defect to be latent, a mere point of weakness, which under unusual stress became manifest.

With regard to the symptoms of this condition little need be said, as they suggest themselves. The external opening of fistulous tracts may be situated almost anywhere in the anterior portion of the neck, about the auditory canals, in the temple, in the neighbourhood of the jaws, etc., but always anterior to the sternocleidomastoid muscles. The external opening is commonly marked by a discoid area of scar tissue, or sometimes it may be so inconspicuous as to escape superficial examination. Only rarely can the fistulous tract be followed by a probe. Fevrier¹⁰ reports the occurrence of severe reflex symptoms—pallor, palpitation of the heart—as a result of attempted exploration of a pharyngeal fistula. The discharge is usually clear mucus, but may be mistaken for salivary secretion, from which it is easily differentiated by the usual chemical methods.

Where the fistula is complete and communicates with the œsophagus or pharynx, droplets of milk may escape during deglutition.⁷ The location of the external opening is rarely a guide to the extent and relations of the fistulous tract or sac. Stimulation of salivary secretion by citric acid or mastication usually stimulates the secretion from the sinus, even when it does not communicate with the alimentary canal.

When opening internally without an external opening, the

condition is commonly spoken of as a pouch or diverticulum (congenital);* when communicating with the œsophagus, it may fill during feeding, or the internal opening may be so small as not to admit food. It may be evacuated by pressure, or the patient may find that, by assuming a certain position, the food does not enter the diverticulum.

Like the fistulæ, the cysts are in the neck, located anteriorly to the sternocleidomastoid, in the parotid or auricular region, in the neighbourhood of the hyoid bone or maxilla, in the interclavicular notch, or less commonly substernal, presenting at the last-named point.

The character of the contents has already been considered. The striking resemblance in some cases to pus or to the caseous contents of tuberculous lesions may mislead the operator. As indicated in the report which follows, it would seem that the character of the cells found in the fluid should at once clear up the diagnosis.

With regard to the age at which the lesions manifest themselves, it may be said that the fistulæ are usually present at birth. They may appear later as a result of opening of pouches or cysts, or incomplete extirpation. Like dermoids of other kinds, the cyst may escape detection until adult life or later. In Cusset's⁵ cases, the patients were ten, fifteen, twenty-one, twenty-two, and twenty-six years of age. In the case reported the specimen was sent to the laboratory by Professor W. W. Keen, to whom I am indebted for the following clinical notes :

"C. E——, aged thirty-six, first consulted me November 6, 1899, at the instance of Dr. C. W. Richardson, of Washington. D.C. His father and mother are living, and in good health. Of his grandparents he knows nothing, except that his paternal grandmother died of old age at about eighty-five. He believes that all of his family were healthy. One sister died of diphtheria. Three years ago he noticed a lump on the lower jaw on the left side; no pain, no inflammation—in fact, no symptoms whatever. Its size was that of a peach-stone until about eight months ago, when it began to grow quite rapidly. There have been, however, no symptoms connected with it, excepting a slight, dull pain about the side of his face, and he thinks it has affected his head, as he has become very forgetful. He has lost 28 pounds in the last six months, weighing at present 175 pounds; but this may be due to other causes. On examination, I found a soft, almost fluctuating tumour, 10 by 6 centimetres, presenting the features of a lipoma.

* For description of dissection, see references Nos. 12, 13, and 16.

"*Operation, November 15.*—An incision was made parallel with the jaw, and after cutting down through the mylohyoid the back of the tumour was reached. This proved not to be a fatty but a cystic tumour. The fluid looked very much like pus. My judgment was that it was a cold abscess either in the connective tissue, or in a very much enlarged and softened gland. I was able to dissect the whole of it out, exposing at the bottom of the wound the great vessels of the neck. I very carefully washed the wound out with salt solution, and then closed it with drainage. He made a perfectly smooth recovery, highest temperature being 100° F.

"*Pathologic Report.*—Specimen, cystic tumour of neck. Specimen consists of an almost empty, flaccid sac, measuring 7 centimetres in its longest diameter. It is oval, or slightly pear-shaped. It contains a pinkish-white opaque fluid that resembles pus. The external wall of the cyst is covered by an arborescent outline of bloodvessels. The lines of dissection from the adjacent tissues are recognisable. By reason of perforations in its wall, it was impossible to refill the cavity and determine its capacity. Approximately one-half the cyst wall is thin (1 to 2 millimetres), perfectly transparent, and containing a few bloodvessels. The remainder of the wall is thicker, but quite irregular in thickness. Its maximum thickness occurs in slightly bossed elevations approaching 1 centimetre. The average thickness of the wall does not exceed .25 centimetre. It is irregularly studded by grayish translucent elevations. The largest of these elevations are palpable, resembling tubercles. At one point in the thickened wall is a yellowish mass, apparently caseous; this mass is ovoid, .7 centimetre by .5 centimetre in diameter. It is situated within the thickened wall, and covered by a thin layer of tissue. At other points the cyst wall is traversed by thin septa, dividing it into irregular depressions. In a general way the colour is pinkish, with areas of what appears to be hæmorrhage, some of which are purplish. At some points the wall is fibrous and very dense, in other areas it is soft and yielding. Weight, 17 grammes."

Fluid contents of the cyst: The quantity is insufficient to determine the specific gravity. The cells vary in size and contour, in the size of the nucleus, and in the quantity of perinuclear protoplasm. The best picture of these cells is obtained in spreads, dried, fixed by heat, and stained in hæmatoxylin and eosin, toluidin-blue and eosin, and Unna's polychrome methylene-blue.

1. The most abundant cell observed in such preparations is of relatively large structure, varying in size from 12 or 15 μ to 35 or 40 μ . In shape these cells are irregularly oval, a few are

round or discoid, while by far the large part are irregularly polyhedral. The majority of these cells are mononuclear; occasionally a cell is to be found containing two nuclei, and in very rare instances three distinct nuclei can be recognised. Some of the nuclei, indeed, one may say the majority, are in a fair state of preservation. Nuclear fragmentation, fissuring, vacuolization and polychrome reactions are recognised. In some of the cells a distinct nuclear structure is no longer to be recognised; in others the nuclear remains are but faintly tinted, constituting irregular shadows in the cellular protoplasm; while in still others the chromatin is fragmented into irregularly outlined granules, which stain unevenly. In many of the cells the nuclear margins are indistinct. The perinuclear protoplasm is, for the most part, finely granular, and takes the acid stain with varying degrees of intensity. Its volume varies within wide limits; the different-sized cells owe their differences in size to variations in the quantity of protoplasm rather than to any variation in size of the nucleus, which is rather uniform. There are apparently free nuclei, which probably belong to these cells, as indicated by the irregular ragged rim of protoplasm, which stains unevenly, and often but slightly. The protoplasm is vacuolated in many of the cells, the vacuoles varying in size from 1 or 2 μ to 7 or 8 μ . In some of the cells of this group the margin is fairly regular and clearly defined; in others the margin is ragged, but sharply outlined; while in still others the protoplasm fades off, and is gradually lost without any sharply outlined limit.

2. An occasional finely granular oxyphile leucocyte can be recognised, although the number of such cells is remarkably small.

3. Occasionally one finds a cell morphologically and tinctorially like a mononuclear leucocyte. These cells, however, are not abundant. There are a few masses of cells in which distinct differentiation cannot be made out, and within these might be included other cells than those described. A few erythrocytes are present.

A count of a thousand cells in spreads made from the fluid gives the following result in percentages:

1. The large cells resembling the squamous epithelial cells described above, 93.7 per cent.

2. Finely granular oxyphile leucocytes (polymorphonuclear leucocytes), 1.8 per cent.

3. Erythrocytes, 5 per cent.

4. Uninuclear leucocytes and unidentified cells, 4 per cent.

Portions of the cyst wall at various points were fixed in Heiden-

hain's solution, infiltrated with paraffin, sectioned, and sections stained with carmalum alone and with picric acid, hæmatoxylin alone and with eosin, Unna's acid orcein, Unna's polychrome methylene-blue, toluidine-blue alone and with eosin, toluidin-blue with differentiation in styron and glycerin-ether, and by Gram's method, and for tubercle bacilli with carbol-fuchsin.

For convenience in description, and for the sake of brevity, the sections from the following areas will be considered :

A. Sections from the thin part of the wall. *B.* Sections from the thicker areas.

A. The best sections from this part of the wall are in the neighbourhood of areas where the thin wall is suddenly or gradually converted into a thick wall by changes which will be mentioned later.

The inner aspect of the wall is lined by large polygonal cells, evidently epithelial. Toward the free margin the cell outlines are not distinct, the nuclear stain is not strong, and vacuoles are abundant in the perinuclear protoplasm, which, under a very high power, is slightly granular; although it is impossible to give accurately the thickness of this layer (which varies) as it merges gradually with the cells below, it may be stated that it approximates two or three of the cell-layers. Just under this layer the irregular polygonal cells become more sharply defined both in outline and stain reaction. Toward the upper layer already described, the nuclei are less distinct, becoming more and more clearly defined, and stained with greater intensity as we approach the sub-epithelial layer. The germinal or basement layer of epithelium is irregularly columnar, with deeply stained nuclei, in some of which changes suggestive of karyokinesis are to be recognised. From this layer passing upward can be recognised the gradual transition from the irregularly columnar form to the more or less flattened, irregular, and poorly stained cells already described as present upon the free surface.

As indicated by the above description, the epithelium of the wall cannot be divided into distinct layers, although there is the suggestion of a stratum corneum and stratum Malpighii. A distinct muscularis cannot be recognised in sections stained in the usual nuclear dyes, although here and there a few long spindle-shaped cells with rod-like nuclei are to be recognised. In sections stained in acid orcein a delicate basement membrane can be recognised at nearly all points; this structure sends trabeculae downward in many areas, penetrating the lymphoid tissue below. While the stratum germinativum is slightly irregular, one cannot

say that there is anything more than a mere suggestion of papillæ. Immediately under the epithelial layer described one finds nearly the whole length of the section a slightly irregular layer of lymphoid tissue. The reticulum varies in quantity, being at some points rather abundant and at other areas scanty. It is not rich in bloodvessels, particularly toward the epithelial surface; as we approach the outer limits, more vessels are to be recognised. The cells occupying the reticular spaces correspond for the most part with the usual type of lymphoid cell, and scarcely merit further description. A few finely granular oxyphile leucocytes are present, although there is certainly no excess of these elements. At points the outer wall, or I might better say outer limit of the wall, is formed by lymphoid tissue. In other areas it is formed by masses of fibrillated connective tissue comparatively rich in bloodvessels and containing a few unstriped muscle fibres. The roughened and irregular free margin at this point is, of course, due to its dissection from adjacent tissue. I have not been able to demonstrate the presence of striped muscle fibres in this area.

B. Sections from Thicker Areas in the Wall.—As the increased thickness of the wall in different areas is due to different causes, it would be necessary to consider these areas separately.

1. Areas in which the thickening is due to a thicker wall of lymphoid tissue. The epithelial covering in these areas deserves no special description, as it varies little, if at all, from the epithelial layer seen in the thinner wall. Partly as a result of its increased thickening and possibly from other causes, the cellular elements usually present on the mucous surface can be more readily recognised, although, as is usual under such circumstances, differentiation into layers is not clear. Cross-sections of flattened cells, such as those already described as present in the fluid contents of the cyst, with flattening, or slight elongation of their nuclei, are to be recognised. There is the same gradual transition from the irregularly columnar germinal layer to the flattened surface layer already described. In some of the thicker areas the lymphoid tissue is more abundant and the reticulum scanty. In other areas the reticulum is more abundant, with a suggestion of proliferative change and corresponding reduction in the richness of lymphoid cells. Distinct arrangement of cells such as compose adenoid follicles of a lymphatic gland can be recognised, and occasionally there is a suggestion of medullary cords, although demonstration of these structures is not complete. External to the lymphoid areas just described there is the same area of fibrillated tissue containing a few long, spindle-shaped cells with rod-

like nuclei. A further study of these lymphoid masses reveals the presence of necrotic spots. Such points embrace only a few cells. Just beneath the germinal layer in some of the sections there is a lymphoid infiltration of the connective tissue, not associated, however, with the presence of finely granular oxyphile leucocytes. These bodies are not abundant at any point in the section.

2. Areas in which the increased thickening of the wall is due to the presence of cysts. The epithelial covering in these areas merits no further consideration than that already given. Only one of these cysts will be described. In designating this distinctly as an additional cyst, the possibility of its communicating at some points with the larger cysts cannot be overlooked, although such communication cannot be demonstrated even in serial sections. The wall of this cyst is formed by an inner zone of squamous epithelium which has been detached or has disappeared from some areas. It shows the same general appearance as that already given for the epithelial lining of the larger cyst. At one point the two cavities are separated by a thin wall less than 1 millimetre in thickness, composed of two epithelial surfaces, between which is a small quantity of fibrillated tissue, rich at points in lymphoid cells.

Macroscopically, on section this cyst possesses a diameter of .3 centimetre, and corresponds with what was mentioned in the gross description as a distinctly yellowish mass, measuring .7 by .5 centimetre. The difference between the diameter in the gross specimen and the section is probably to be attributed to shrinking and the removal of fluid from the interior of the cyst, or to the section not passing through the greatest diameter. The cyst contents, as examined in the fixed and infiltrated preparation, are usually composed of fine, intensely acidophilic granules, resembling in many respects the detritus in caseous areas. That it is not caseous in the true sense is shown by the fact that it contains large squamous epithelial cells, such as have been identified in the fluid from the larger cyst. Most of these cells have lost their characteristic stain reaction, selecting only the acid dye, and therefore possessing indistinct, irregularly defined nuclei and cell outlines.

The contents as here studied must be considered to be the product of degenerative changes in the epithelium, which has been cast off into the cyst cavity. Three smaller cysts, identical in all their essentials with that just described, have been found, and it is reasonable to infer that the many small whitish or grayish, translucent elevations mentioned in the gross description were

probably, or at least some of them, cysts resembling the one just described.

3. Sections from other areas in the cyst wall show evidences of chronic inflammation, manifested by a lymphoid and plasma cell infiltration with the production of fibroblasts, and in some areas cicatricial tissue. At a few points the mucosa shows distinct papillæ. They are, however, not abundant. Occasionally there is a distinct fold, resembling the irregularities or rugæ observed in mucosæ, surrounding cavities whose walls possess considerable distensibility. Transverse section of the overhanging rugæ gives the appearance, at times, of superficial, gland-like projections. Serial sections, however, show clearly that these are folds. In other areas distinct glands are demonstrable, and it is evident that the cysts already described have resulted from distension of gland acini, or ducts, or both.

Bacteriology.—Cultures were not obtained from the cyst contents. Spreads and sections show the presence of a few cocci in the cyst contents and in the wall; these cocci stain by Gram's method, are apparently staphylococci, few in number, and the absence of cellular infiltration as well as the scant necrosis would indicate that the infection, if such existed at the time of extirpation, is inconsequential.

Diagnosis and Remarks.—There can be no doubt of the branchial origin of this cyst. The character of the epithelial covering, its arrangement, the morphology of its cells, the structure of the submucosa, the presence of cysts in the wall, the abundant lymphoid tissue, and the cyst contents all point to the branchial origin. From a practical view, the character of the cells found in the fluid contained within the cyst offers important diagnostic aid. The small number of leucocytes of the type usually found in pus, and the presence of large mononuclear cells rich in perinuclear protoplasm, and the absence of necrotic material should be in the future of value in diagnosis. In cysts of endothelial origin, similarly located, it is not likely that exfoliated cells would ever present the morphologic and tinctorial characters recognised in the case reported. Endothelial cysts possessing richly cellular fluid contents would, no doubt, owe their cellular elements to the presence of migrated leucocytes and exfoliated endothelium, in which case no such a cell count as that reported would be found. It would therefore appear to the writer that an examination of the fluid that came from such a cyst, taken in consideration with its location and clinical history, should make the diagnosis less difficult than it at first appears.

With regard to the treatment little need be said; total ablation, where possible, is the only commendable plan. Pockets that cannot be excised may be cauterized. Poncet¹² used chloride of zinc, but does not give the strength of the solution used; tincture of iodine, carbolic acid, or the actual cautery may be used. All surgeons are agreed that the use of irritants and escharotics, either by injection or application with a swab, is untrustworthy.

¹ Heusinger, *Arch. f. path. Anat. u. Physiol.*, etc., Berlin, 1865, 2 s., ix., pp. 358-380. ² Fischer, *Deutsche Zeitsch. für Chir.*, Bd. ii. (quoted by Sutton). ³ "De Fistulis Tracheæ Congenitis," Halæ, 1829. ⁴ "De Fistulis Coli," 1832. ⁵ Cusset, *Congrès Français de Chirurgie*, 2nd Session, Paris, 1866, p. 553 (Chronologic Record of Reported Cases, 1877 to 1886). ⁶ Guzman, *Thèse de Paris*, 1886. ⁷ Sutton, "Tumours, Innocent and Malignant," Philadelphia, 1893. ⁸ Senn, "Pathology and Surgical Treatment of Tumours," Philadelphia, 1900. ⁹ *Philadelphia Medical Journal*, vol. vii., No. 1, January 5, 1901. ¹⁰ Fevrier, *Société de Chirurgie*, 1892. ¹¹ *British Medical Journal*, February 26, 1898. ¹² *Congrès Français de Chirurgie*, 2nd Session, Paris, 1886. ¹³ *Arch. f. path. Anat.*, etc., Berlin, 1884, xlviii., pp. 345-353. ¹⁴ *Ibid.*, etc., Bd. lxxii., p. 444. ¹⁵ *Bull. de la Société de Chirurgie*, 22 juillet, 1885. ¹⁶ *American Journal of Medical Science*, New Series, vol. lxxviii., p. 70. ¹⁷ *Journal of Anatomy and Physiology*, vol. ix., p. 134.

NOTES.

THE BRITISH CONGRESS ON TUBERCULOSIS will be held in the Queen's Hall, London, from Monday, July 22, to Friday, July 26. From the preliminary programme we learn that the British Colonies and Dependencies will be represented by delegates, and the governments of countries in Europe, Asia and America are invited to send representative men of science and others who will be the distinguished guests of the Congress.

The object of the forthcoming Congress is to exchange the information and experience gained throughout the world as to methods available for the treatment and prevention of tuberculosis.

The work will be dealt with in four sections: Section I.—State and Municipal; President, Right Hon. Sir Herbert Maxwell, Bart., M.P. Section II.—Medical, including Climatology and Sanatoria; President, Sir R. Douglas Powell, Bart., M.D. Section III.—Pathology, including Bacteriology; President, Professor Sims Woodhead, M.D. Section IV.—Veterinary (Tuberculosis in Animals); President, Sir George Brown, C.B.

A Museum of Pathology, Bacteriology and Public Health will be formed in connection with the Congress.

The BRITISH MEDICAL ASSOCIATION will hold its sixty-ninth annual meeting at Cheltenham on Tuesday, Wednesday, Thursday and Friday, July 30 and 31, August 1 and 2, 1901. Laryngology and Otology will be dealt with in a separate section under the presidency of T. Mark Hovell, Esq. The honorary secretaries to this section are Dr. William Lamb, 22, Temple Row, Birmingham, and James Braine-Hartnell, Esq., Cotswold Sanatorium, near Stroud.

The OTOLOGICAL SOCIETY OF THE UNITED KINGDOM will hold its next meeting in Edinburgh on Saturday, May 11. This will be the first of the meetings held by the Society out of London, and it is hoped that as many members as possible will attend. Another meeting will be held in London on Monday, June 10.

A life-size marble bust of Dr. Horace Green, one of the earliest pioneers of laryngology, was recently unveiled at the New York Academy of Medicine. The bust, which was executed in Italy, is a gift to the Academy of Medicine from Dr. Green's widow and his son, George Walton Green.

Professor Francis J. Quinlan, M.D., LL.D., of New York, whose name is well known to the readers of the *Journal*, has been the recipient of a loving-cup presented to him at a complimentary dinner by a large number of professional friends.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

Sixty-third Ordinary Meeting, February 1, 1901.

E. CRESSWELL BABER, M.B., *President, in the Chair.*

It was proposed by the PRESIDENT, seconded by Sir FELIX SEMON, and carried unanimously, that the following be sent to the King's Most Excellent Majesty :

"The members of the Laryngological Society beg to offer to your Majesty their expression of sincere sympathy in the great sorrow that has befallen the Royal Family and the Empire, and to submit to your Gracious Majesty their respectful congratulations and allegiance upon your accession to the Throne."

The following cases and specimens were shown :

A Case of Nasal Polypi with Marked Deformity. Shown by Dr. DONELAN.

The patient, aged twenty-three, had noticed increasing nasal obstruction since about 1892, which became complete in 1896, causing great spreading of the nasal bones and the same marked deformity as now existed. A large number of polypi were then removed with the snare, but recurrence gradually took place.

In December, 1900, he came to the Italian Hospital, Queen Square, with complete obstruction due to the nose and post-nasal space being crowded with polypi.

The patient underwent a preliminary clearance of polypi, and the middle turbinals were removed, any polypi that escaped being subsequently snared; and finally, on January 9, the nares and ethmoidal sinuses were thoroughly curetted. It was, however, to be feared that recurrence was again about to take place. Dr. Donelan requested the advice of members as to further measures.

The PRESIDENT said it was a case in which the polypi had come back after an operation of a radical nature had been done. It seemed to him that, before any further operation was undertaken on the ethmoid, the condition of the large sinuses ought to be investigated.

Dr. HERBERT TILLEY agreed with the President that the intra-nasal appearances afforded strong evidence of primary accessory sinus disease. He asked if the antra had been transilluminated.

Dr. WILLIAM HILL said a very interesting point was the cause of the enlargement of the maxillary bones, the nasal processes of which were enormously prominent and thickened. If polypi were really a sign of bone disease, one could understand disease extending in these advanced cases to other bones of the nose besides the ethmoids. Great enlargement of the "uncinate body," so evident in this case, was diagnostic of sinus disease, more especially of the antrum.

Dr. DUNDAS GRANT said it was an interesting question as to how much deformity might be produced by a benign growth. Deformity of the face was classed among the signs of malignancy; the deformity in the case under discussion was frequently produced without there being anything of a malignant nature.

Dr. FITZGERALD POWELL said this was an exaggeration of a condition not infrequently seen as the result of the expanding pressure of polypi, accompanied by rarefying osteitis. The best results would be obtained by free curetting with a ring-knife, which would

relieve the tension, remove diseased bones, and check suppuration. At the same time, attention should be directed to the maxillary sinuses, which should be drained if necessary.

Dr. BRONNER said that in the provinces cases of very great deformity frequently occurred. It generally disappeared even in adults in the course of a year or two after the removal of the polypi.

The PRESIDENT had seen these cases of deformity, and considered them due to dilatation from the pressure of the growths. He had not, like Dr. Bronner, seen the deformity disappear.

Dr. VINRACE wished to know whether Dr. Donelan attributed the deformity to anything except obstruction, and the long time during which the condition had existed.

Dr. STCLAIR THOMSON supported Dr. Bronner in his remarks. Within the last three weeks he had had under his care a case in which marked deformity was present. He had operated on one side of the nose, and more or less completely cleared it of polypi, and left the other alone. In the former the condition subsided, and in the latter it remained unaltered. In his (Dr. Thomson's) case the nose was so distended that there was a separation between the nasal bone and the nasal process of the superior maxilla on each side. The difference between the two sides was remarkable even after a few days.

Dr. DONELAN thought from the first that the ethmoidal sinuses were certainly affected, and after the first curetting it became obvious that they were so on both sides. The left antrum was also affected, but he did not think the frontal sinuses were. The deformity was due, he thought, to the pressure of the mass of the growth. It was four years since the nose was completely cleared, and, as far as the patient could tell, there was no improvement in the deformity; there certainly was not any since it was cleared before Christmas last.

A Fatal Case of Exophthalmic Goitre. Narrated by Dr. DONELAN.

The patient, an Italian girl, aged sixteen, was admitted into hospital on December 20, 1900. There was no family history of goitre, and no history of any previous illness of importance. In September, 1899, the history begins with symptoms of palpitation, oppression and dyspepsia, which were relieved by treatment, and never caused much inconvenience. In September, 1900, during her father's absence she lived with some relatives who treated her cruelly, and on one occasion seized her by the throat and nearly strangled her. She had noticed no previous enlargement of the

throat, but from that time the growth of the thyroid was rapid and continuous.

She first attended the hospital on December 14, 1900, when she complained of the ordinary symptoms of exophthalmic goitre. There was considerable thyroid enlargement, the neck measuring 15 inches, moderate exophthalmos, a rapid pulse (140), and a mitral systolic murmur without apparent loss of compensation. She was advised to rest, and to take a mixture containing 10 minims tr. belladonnæ and 5 minims tr. digitalis. She rapidly became worse, and was therefore admitted into the hospital on December 20. She had tremors affecting the head, neck and thumbs, violent cramps of limbs and body lasting five to seven minutes, vertigo with a tendency to fall to the left, marked retinal pulsation, and traces of optic neuritis.

Von Graefe's sign was present, but Stellwag's absent. The pulse-rate gradually increased from 140 to 160; nervous vomiting became persistent on the fourth day; finally she became comatose, and when with difficulty roused she complained of intense headache. She died, apparently of heart failure, on the sixth morning after admission.

The treatment consisted of belladonna and digitalis as before until vomiting became persistent. Citrate of potassium, as recommended by Dreschfeld, failed to check this, and rectal feeding was carried out, and ice applied to the head and spine.

Extract from report of post-mortem made by Dr. Pareira: "Brain intensely congested. Cerebellum very large and congested. Pineal gland much enlarged. Careful sections failed to show any other abnormality in these organs or in the medulla. Cervical sympathetic atrophied, thoracic normal. Thyroid gland much enlarged. Trachea much compressed though dyspnoea had not been present. A few small cysts in thyroid. Thymus gland persistent and much enlarged. Stomach atrophied. Uterus ill-developed and infantile. No corpora lutea in ovaries."

Dr. Donelan did not consider this disease was due to the fright caused by the assault, though doubtless the symptoms were thereby accelerated. There were evidently symptoms a year before, pointing to the commencement of the condition which, when thoroughly established, is called exophthalmic goitre. Without reviewing the various theories that had been put forward to account for this group of symptoms, the exhibitor desired to call attention to an important pathological feature, namely, the persistence and enlargement of the thymus gland. This persistence is found in practically every fatal case in which it is carefully looked for, and enlargements

may also occur, as in the present instance. He would not presume to add another to the existing theories, but he thought the pathology of the disease had to be sought for in an earlier period of life. The thymus gland is a fetal structure disappearing normally *pari passu* with the development of the thyroid. Its persistence is obviously evidence of an abnormal condition occurring in infants, if not in uterine life. Evidence should be collected with a view to showing whether the failure of the thymus to undergo the normal retrogression reacts on the thyroid gland and nervous system through the medium of the blood in such a way as ultimately to produce these well-known symptoms.

SIR FELIX SEMON said it was new to him to learn that in cases of exophthalmic goitre one almost regularly found an enlarged thymus. He would like to ask Dr. Donelan to give more information on that interesting point.

Dr. DONELAN said, in reply, that he had just lately looked up the literature of the subject, and, as far as he was able to ascertain, it was generally mentioned that the thymus gland was persistent in the majority of cases. Some authors, amongst whom might be mentioned Osler, said it could be found in *all* cases if carefully looked for. Up to the present no pathological changes had been described as occurring in the gland. He thought the association of the enlarged thymus with subsequent increase in the thyroid was a point to be noted for further investigation. It might have something to do with the real cause of the disease. The thymus in this case was, he believed, unusually large.

Specimen of Mucous Patch of the Tonsil. Shown by Dr. WYATT WINGRAVE.

The section conforms to the classical descriptions of histological details, in that the stratified surface epithelium is considerably thickened, and exhibits all stages of necrosis, from simple cloudy swelling to complete vacuolation and disintegration. The nuclei are broken up into granules, while the protoplasm remains clear and liquefied, but the invading leucocytes are few and multinucleated.

The subjacent structures exhibit but slight activity beyond distension of the lymph spaces and multiplication of the mononucleated lymphocytes.

Cutting Trephine for Operating on Spurs and Deviations of the Nasal Septum. Shown by Dr. BRONNER.

This trephine was used in conjunction with Spiesz's nasal speculum. The short blade of the speculum was placed in front

of the spur, and the long blade over the lower turbinated bone. The trephine was worked by an electro-motor. The operation could be performed with cocaine or eucaine, and was practically painless. Spurs and deviations of the nasal septum were very common, and caused nasal obstruction, preventing the passage of the Eustachian catheter. The lumen of the trephine was about the same size as that of the largest intubation tube. Messrs. Down and Co. were the makers of the trephine.

The PRESIDENT thought Dr. Bronner's trephine was about the best form of such instruments to use, especially with the speculum shown, and the Society was indebted to the exhibitor for bringing it forward. Personally he always preferred a saw, and used a straight and not an angular one, because the latter "locked" so easily. After anæsthetizing locally, a line was marked with the galvanic cautery where the sawing was to take place. This diminished the hæmorrhage, especially if a solution of supra-renal capsule were also used. He did not think that, theoretically, a circular trephine was the best instrument to remove a spur from a flat surface like the septum, although in practice it might answer perfectly.

Dr. STCLAIR THOMSON wished to elicit the opinion of members who had tried both the trephine and the saw. He himself had no experience of the trephine, but he had heard complaints of it "jamming," and of its liability to stop suddenly. Would those members who had tried both say whether they were in favour of the trephine?

Dr. WILLIAM HILL had used the nasal trephine, with and without serrated edges, a great deal in times gone by. It, unfortunately, did not leave a really level surface, even when several pieces were removed. He therefore generally used a saw now, but he often felt that if he had a dental engine or motor ready at hand he would use a trephine, on account of its being more expeditious and less painful than the saw.

Dr. HERBERT TILLEY pointed out how very efficiently a nasal spur may be removed if a deep groove be first made with an intra-nasal saw, and the "spokeshave" then applied behind the groove and rapidly withdrawn. The cutting edge keeps accurately in the groove already made, and a flat surface is left upon the septum. This method can be used for bony and cartilaginous spurs, but in the first case a deeper groove should be made with the saw. In a fairly tolerant patient the operation could be performed with cocaine alone.

Dr. BRONNER, in reply, said in using the trephine the "jam-

ming" was not so great as with the saw if a sufficiently powerful motor were used. It was practically painless with cocaine or eucaine, and the quicker the instrument rotated the less was the pain caused. In treating a deviated septum, it was often necessary to apply the trephine twice, in order to remove a sufficiently large piece of cartilage. The cartilage in these cases was generally very thick.

Congenital Symmetrical Gaps in both Anterior Pillars of the Fauces with Complete Absence of Tonsils. Shown by Sir FELIX SEMON.

The patient was a girl, aged eleven, who was seen by the reporter on September 28, 1881. There was a tubercular family history, and the patient herself was very strumous-looking. She was brought to the hospital on account of naso-pharyngeal catarrh.

On examination of the throat two large ovoid gaps were seen to extend almost through the entire length of the anterior pillars of the fauces. They were perfectly symmetrical, and their edges were absolutely soft. Nowhere in the throat was there any evidence of scarring. A probe introduced through either of these gaps entered into the niche reserved for the tonsils. There was, however, not the least trace to be seen of any tonsillar tissue in these receptacles on either side. Neither mother nor child knew anything of the existence of the abnormality.

His reasons for considering the defect in the light of a congenital arrest of development were not merely the absolute symmetry of the gaps, and the absence of all scarring as well as of any history of ulcerative disease, but particularly the complete absence of the tonsils.

On looking through the literature at his disposal, he had found that in three out of about twenty cases of an analogous kind noted in the *Internationales Centralblatt für Laryngologie* since 1884, a similar absence of the tonsils was expressly reported.

This fact seemed to him very striking, and considerably added to the view that these gaps must be regarded as a result of arrested development, a view in which most of the observers who had seen similar cases agreed. Possibly they might represent the inner openings of incomplete branchiogenous clefts, a possibility which Chiari suggested when describing a case of the sort in 1884 (*Monatsschrift für Ohrenheilkunde*, August, 1884), although he then admitted, as the reporter did now, that a fully satisfactory explanation could not be given.

The PRESIDENT said it looked undoubtedly like a case of malformation.

Dr. STCLAIR THOMSON said that in calling the case "congenital," Sir Felix Semon had anticipated the decision of the question. In his opinion it was a doubtful point, and until a similar condition was detected in early infancy the question would remain open. It was new to him to hear of the absence of tonsils in this condition, and he briefly narrated the particulars of symmetrical gaps in a woman in whom the tonsils were still remaining. Since the last meeting he had seen two cases; one was bilateral and symmetrical, and had some slight scarring on the pharynx, though there was no previous history pointing to ulceration. The other case occurred in a medical man, who was willing to come to the Society. He had a gap on one side only, which had existed as long as he could remember. He had never had scarlet fever or syphilis.

Case of Serous Cyst of the Inferior Turbinate Body and Floor of the Nose. Shown by Dr. H. J. DAVIS.

This patient, a woman, aged twenty-five, has suffered from gradually increasing nasal obstruction for some years. Ten days ago, when she came to the Middlesex Hospital, there appeared to be a marked hypertrophy of the anterior end of the right inferior turbinate, the floor of the nose being involved in the swelling, which was as large as a pigeon's egg, and was firm and resistant to the probe.

The tissues did not shrink under cocaine, and the swelling being mistaken for a growth, an attempt was made to remove a piece for examination, which failed. An aural paracentesis knife was then passed into the upper part of the swelling; a jet of greenish clear fluid spurted out of the nostril, and the swelling rapidly and entirely collapsed.

The cyst is slowly refilling, and can be seen as a fluctuating projection in the floor of the nostril. The patient has had no further treatment beyond the primary puncture.

Dr. MACBRIDE thought the case must have been of great interest before the cyst was evacuated. He believed himself to have been the first to describe this form of cyst a number of years ago. To him the special point of interest was the origin of such cysts; it was difficult to imagine where they could originate. Had Dr. Davis formed any theory as to the causation? He might mention that Dr. Brown-Kelly, of Glasgow, had found glands with very long canals in this region of the nose, which he thought might explain

the occurrence of cysts. One of his (the speaker's) earlier cases kept on refilling, and had to be dissected out by raising the upper lip.

Dr. DAVIS, in reply, said he had considered the origin to be due probably to retention of secretions in one of the glands—a retention cyst, in fact. In this case the cyst was much more prominent two days before, but the woman had had some sanious discharge in the nose that day, and it had again collapsed. If one looked carefully, one saw that the under surface of the inferior turbinate had been expanded, and the cyst was evidently of considerable depth beneath that bone.

Case of Mucocele of the Frontal Sinuses. Shown by Dr. LAMBERT LACK.

This boy had already been shown at the Ophthalmological Society before operation. There is marked divergence of the eyes, and the bridge of the nose is widely distended, especially on the left side. When he first saw the case the mass of the growth seemed bony, but there was a fluctuating area at the upper and inner corner of both orbits. The history was four years' duration with steady increase. The diagnosis—mucocele of the frontal sinuses with dislocation downwards and outwards of both lachrymal bones—was confirmed by operation. The left frontal sinus was enormously distended, its anterior bony wall being practically absorbed, its cavity extending backwards and inwards behind the right frontal sinus, and downwards in the direction of the infundibulum. The mucoid contents were evacuated, and a large opening made through into the nose and maintained by a plug, which is still worn. This sinus is now secreting pus, but is becoming more dry, and as the opening into the nose is probably permanent, it may be possible to shortly close the external wound. The right sinus was smaller, and an attempt was made to obliterate it without making a communication with the nose, but it has not yet healed. The infundibulum on the left side was probably first obstructed, and the right infundibulum obliterated by the pressure of the expanding left sinus. These cases being rare, Dr. Lack said he would be glad to receive any suggestions to hasten the cure.

Dr. HERBERT TILLEY thought, considering the long duration of the treatment, and the nature of the operation already performed, that nothing short of a further radical operation offered any prospect of cure. He therefore suggested that, as the patient was a growing lad, and as much of the present deformity would be permanent, a more extensive removal of bone was indicated.

Dr. MACBRIDE asked Dr. Tilley to explain exactly how he pro-

posed to proceed. The left frontal sinus was of very great depth. This case was just one of those where the frontal sinus was so deep that it seemed to him that the method proposed by Dr. Tilley practically amounted to performing Kuhnt's operation, but then the upper wall of the orbit would have to be removed; if the soft parts were allowed to fall in on the sinus, there would still be a considerable space which could not be filled up or covered. He thought there must be a cavity left owing to the depth of the sinus. He had operated on a good many frontal sinuses, and he found those described in the text-books were perfectly easy to deal with; but in a large proportion of cases one had cavities containing pus behind the orbit, and one could not let the soft parts fall in in such cases.

In answer to Dr. MacBride, Dr. TILLEY said he would propose a horizontal incision over the lower central part of the forehead, which should join the incisions already present and partially healed. The soft tissue covering the lower part of the forehead could then be drawn upwards, and a complete removal of the anterior bony walls of both sinuses carried out. The septum could simultaneously be removed, and so allow the soft parts to fall on to the posterior walls of the sinuses, and bring about their obliteration. The receding angle between the roof of the orbit and the lower part of the posterior wall would, he thought, fill up with granulation tissue, which would eventually organize; and even if a small cavity eventually remained in this position, it would probably be harmless if free drainage into the nose was secured. In such a growing lad the deformity, he thought, would not be greater than at present, and it was obvious that something must be done to ameliorate the present condition of things.

The PRESIDENT said that it seemed to him that the only way of obliterating the sinus was by Kuhnt's operation, which consisted in the removal of the whole of the anterior wall except about $\frac{1}{8}$ inch along the supra-orbital ridge. The periosteum and skin should be carefully stitched down, and a rubber tube projecting at the inner angle inserted in the wound. Granulation tissue would form and obliterate the sinus. This must leave a certain amount of depression. The case he had operated upon and shown to the Society was satisfactory as far as the result was concerned. The case was one of a large mucocele, and if the same procedure were carried out in the case under discussion he thought the patient would get equally well.

Dr. VINRACE inquired what were the urgent symptoms demanding operation, and suggested it might have been better to leave the case longer before proceeding to such grave surgical measures.

Case of Persistently Recurring Nasal Polypus with Suppuration in the Frontal and Ethmoidal Sinuses; Operation; Result. Shown by Dr. LAMBERT LACK.

This patient is shown as a contrast to the case exhibited by Mr. de Santi at the last meeting of the Society. The two cases are very similar. This patient had had polypi for many years, commencing when she was about fifteen, accompanied by profuse sinus suppuration, and for three years had had them removed as often as every fortnight, but in all that time had been unable to breathe through her nose. Two years ago, when I first saw the patient, I scraped out the nose under gas. The operation had to be done as an out-patient, and therefore was not so thorough as I could have wished, but in spite of this the patient has had free nasal respiration ever since. On three occasions small pieces have subsequently been removed with a snare, but now for more than two years there has been no return of the polypi. After the operation the discharge from the nose also greatly lessened, but did not completely cease until the frontal sinuses had been obliterated. This operation, which I always recommend where practicable, as I believe it to be the only sure curative measure, entails the complete removal of both the anterior and inferior walls of the sinus, but in spite of this the deformity may be scarcely noticeable, as this case shows. My experience of this operation makes me think that a deformity such as occurred in the case Dr. Tilley showed at the last meeting is quite exceptional.

Dr. STCLAIR THOMSON thought the case showed the necessity for care in specifying beforehand the amount of relief we might secure, and how we should be slow to claim a complete cure in these cases. There was a distinct foetid odour from the nose of this patient; although she had washed out her nose twice already that day there was pus in each middle meatus; and she informed him that although the operation had been done nearly two years ago, she still had to syringe her nose three times a day. Now, both Dr. Tilley and he had shown completed cases of operation for frontal sinusitis at the last meeting, but candour compelled him to say that neither of them was then completely cured. In Dr. Tilley's case there was some pus in the middle meatus. His own patient had washed out his nose in the morning before coming to the meeting, and by five o'clock the secretion had not accumulated in such quantity as to be distinctly evident. This secretion could not possibly come from the frontal sinus, as he (Dr. Thomson) had seen that the fronto-nasal duct was quite obliterated before allowing the opera-

tion wound under the eyebrow to heal up. It must, therefore, have come from the ethmoidal cells, and these had, since last meeting, been well curetted; a slight crust of dried mucus still formed over them, but the patient did not require to syringe his nose more than once a week. In Dr. Lack's case there was distinct pus, though doubtless the patient's sufferings had been greatly relieved.

Dr. HERBERT TILLEY was surprised to hear (for the first time) that the case he showed at the last meeting was not a complete cure, and he ventured to think that Dr. Thomson had some other case in his mind. Dr. Lack had spoken of his case as a cure, and in spite of dissenting opinions the speaker was inclined to agree with him if the word was not too rigidly applied. In the case referred to, no pus came from the sinuses, but one or two ethmoidal cells were not clear from disease, and they would probably cause little trouble. This led to the question asked by one member, "When is a surgeon justified in advising an external radical operation upon a chronic frontal sinus empyema?" Dr. Tilley thought the answer mainly turned upon the patient's views on the subject, and cited a case under his care for the last two years of a young engineer, who was just beginning to get on in his profession. This patient had applied to him on account of nasal obstruction, purulent discharge, a chronic headache, and inability to concentrate his mind on his work. The nostrils were full of polypi, and pus flowed freely from both frontal sinuses. On irrigation by the right fronto-nasal canal the fluid returned from the left nostril, demonstrating a septal perforation allowing free communication between the sinuses. In due course all the polypi were removed, also the middle turbinates on both sides, and a quantity of the ethmoidal cells. The patient (who was seen six weeks ago) says he is "cured" because his headaches have gone, he feels quite well, the discharge has "practically ceased," and he only uses one handkerchief a day. Examination of the nasal cavities revealed a drop of pus at the lower end of each fronto-nasal canal, and the speaker thought that he was not justified in advising a radical operation under such circumstances, for the patient was really in very little danger, and not inconvenienced by his condition. The speaker thought that in such cases the nose should be merely cleansed once or twice daily, and nothing else done. On the other hand, if the individual was of a nervous disposition, and could not tolerate the occasional appearance of a streak of pus from the nose, he then explained the nature of the operation, its chances of success, the

possibility of a small scar, etc., and left the patient himself to settle which course he would pursue.

Sir FELIX SEMON said Dr. Tilley had raised a very grave and important question, which he was very glad had been brought forward. The question was, When ought one to perform a radical operation in these cases? Belonging to the seniors, he did not wish to be considered as opposing the progress of the times. It was a great achievement that they could diagnose these cases better, and so treat them more successfully than in the past by these big radical operations; but, on the other hand, he looked back over a period of twenty-five years which had been devoted to special practice, and within that period he had seen plenty of these cases, and, so far as he knew, very few of them had come to grief prior to the discovery of these modern forms of treatment. No doubt there were a *few* cases in which threatening symptoms, such as severe headache, coma, meningitis, and other complications, had arisen from a misunderstanding of their original cause, and from want of radical treatment; but how few were and are such cases! Looking at the question from another point of view, he asked whether a really complete and lasting cure could be promised in every one of these cases after a so-called radical operation. He had seen a good many of Dr. Tilley's cases, and most heartily congratulated him on the results, but he had also seen other cases—and he was not the only one who had—in which, after the performance of a radical operation, suppuration still continued: further operations had become necessary, and the patient finally was not much better off than before. This fact had been brought forward before in the Society. He was particularly anxious not to be thought incapable of seeing anything good in things new, but really, in his opinion, it was a matter deserving very great consideration as to whether the discovery of a little pus coming from the frontal sinus demanded radical operation in every case, though the surgeon was bound to tell the patient that the big operation occasionally left some deformity.

Dr. FITZGERALD POWELL had been much interested in this discussion, which to a certain extent had somewhat relieved his mind, as it appeared to him that the tendency of late was to rush to the performance of this rather serious operation as soon as pus was seen in the nose. He had at the present time a case in his hands, in which it had occurred to him that the radical operation should be done. The patient was a young woman who had suffered from all the signs of "frontal sinusitis" in a marked degree. He sug-

gested to her the radical operation, also putting before her the possibility of deformity. As she was about to be married, she decided not to undergo the operation. At several sittings he removed as much as possible of the middle turbinate and freed the infundibulum, afterwards washing out the sinus. The patient was now perfectly free from pain and frontal headache. She used a nasal douche, and was quite comfortable. Every now and then a small quantity of pus appeared in the nose, which caused little or no inconvenience. This case fully illustrated the safety and propriety of leaving the radical operation alone.

Dr. DONELAN asked Dr. Lack what proportion of these cases underwent spontaneous cure. He had a case under his care about a year ago, in which a young man, aged twenty-four, had distinct suppuration of the right frontal sinus, and arrangements were made to operate. Before it could take place the discharge came away. He washed out the nose, and the patient had remained perfectly well since.

Dr. VINRACE wished to know how long would Dr. Lack wait, after freeing the nostrils from polypi, before proceeding to undertake one of these terrible operations.

Dr. LACK, in reply, said he thought Dr. Thomson a little hypercritical. He saw no reason for continuing treatment, as the patient was practically well and had ceased attending him for nearly a year. The indications for external operation on the frontal sinus were rather indefinite. He recommended operation whenever the disease caused symptoms producing serious inconvenience. When the only symptom was slight purulent discharge he thought the cases best left alone. He always in the first instance adopted intra-nasal methods to the extent of removing the middle turbinate, opening the anterior ethmoidal cells, etc., and thoroughly clearing the approach to the infundibulum, so as to allow the sinus to drain freely into the nose. If this failed to give relief he operated externally, and always endeavoured to obliterate the sinus, as he believed it the only certain method of obtaining a cure. Personally he did not believe in the possibility of making a definite diagnosis except by opening the sinus, and thought many of the cases cured by intra-nasal operations, such as opening up the anterior ethmoidal cells, were really cases of ethmoidal cell disease, but this was only an additional argument for carrying out thorough intra-nasal methods before adopting external operation.

Papillomata removed from the Larynx by the Endolaryngeal Method. Shown by Dr. HERBERT TILLEY.

The patient was a lad, aged four and a half years, who was brought on account of difficulty of respiration and hoarseness. The former was so marked that the night previous to operation the patient was nearly asphyxiated. It was deemed advisable on account of the dyspnoea to perform a preliminary tracheotomy. Four days after this the endolaryngeal operation was carried out. The patient was chloroformed by Dr. Hewitt, and held in a sitting attitude; it was then quite easy to remove a few growths before the returning laryngeal reflex and acts of swallowing rendered a further deepening of the anæsthesia necessary.

By this means the growths were removed, and the voice returned for six months, when increasing hoarseness necessitated a second operation. On this occasion only a few growths were present, and were easily removed.

The speaker emphasized the ease with which the operation could be performed when the anæsthetic was skilfully given in the sitting position.

Case of Epithelioma of the Tonsil with Extensive Glandular Involvement in a Middle-aged Man. Shown by Dr. DUNDAS GRANT.

The typical epitheliomatous ulcer extended over from the tonsil on to the soft palate and anterior pillars, involving also the adjacent portion of the base of the tongue. There is also a large hard mass of glands in the neck. Dr. Grant presumed that the members of the Society would agree that the case was beyond operation. A coloured drawing by Dr. Mackintosh showed the characters and extent of the ulcer most perfectly when first seen. Since then a mass out of the centre of the growth had sloughed away, giving the patient very great relief.

Sir FELIX SEMON remarked that, in his opinion, it was not a case for operative interference.

Microscopical Portion of Vocal Cord removed by Means of Jurasz's Punch Forceps from the Vocal Cord of a Gentleman aged Sixty-one. Shown by Dr. DUNDAS GRANT.

The patient was the subject of huskiness of the voice which commenced with influenza between seven and eight months before he was seen, gradually increasing in severity. On laryngoscopic examination there was seen in the middle third of the left vocal cord a granular outgrowth of a reddish-pink colour, internal to which was an excavation, the floor of which was moist and of a

yellowish colour. The larynx was otherwise normal, and there was no impairment of mobility of the vocal cord. There was a history of primary specific inoculation in youth, and of a consolidation of the apex of the right lung in early middle age, the pulmonary trouble having apparently completely subsided. An examination of the morning sputum was made by a skilled bacteriologist, who in the first film found two bacilli which stained like those of tubercle; numerous subsequent examinations of the sputum were in that respect entirely negative, and the bacteriologist came to the conclusion that there was not sufficient evidence on which to found a diagnosis of tubercle. Mercurial inunction and iodide of potassium were without the slightest effect, and the great probability was, therefore, that the disease was epitheliomatous, although the appearance was not absolutely typical. A highly skilled *confrère* considered that the evidence pointed also in this direction, and that the removal of a portion by endolaryngeal methods or the opening of the larynx was called for. Dr. Grant removed a large portion by means of Jurasz's forceps, but in none of the sections removed was there any appearance in the least suggestive of epithelioma. The growth seems, therefore, to have been entirely composed of inflammatory tissue, and the patient at present suffers only from the interference with his voice, which is due as much to the use of the forceps as to the disease itself. He is rapidly improving.

Case of Glottic Spasm in a Young Woman aged Twenty-four.
Shown by Dr. DUNDAS GRANT and Mr. MACKINTOSH.

Mr. Mackintosh was called to see the patient on account of a suffocative attack, the onset of which had been quite sudden; there was no previous hoarseness, but the patient had experienced uncomfortable choking sensations in the throat; there was a harsh brassy cough, the voice was husky, and there was occasionally stridulous inspiration. The suffocative attack rapidly and completely subsided, but the slight huskiness of the voice persisted. On laryngoscopic examination there was no œdema of the framework of the larynx: the vocal cords were slightly congested; the most marked feature was swelling of the lingual tonsil, in which there were numerous patches of exudation; there was also a distinct enlargement of the thyroid gland. Next day Drs. Grant and Mackintosh examined the patient together at the Central London Throat and Ear Hospital. The larynx was then free from any sign of inflammation; the swelling of the lingual tonsil had considerably subsided, and there were elicited such stigmata of hysteria as comparative hemianæsthesia of the right side, and

diminution of pharyngeal and nasal reflex. The treatment ordered was bromide of potassium. The case was, therefore, considered one of hysterical glottic spasm, the acute lingual tonsillitis being a factor in the exciting causation.

Mr. Mackintosh called attention to the defective condition of the teeth, the whole of the upper set being represented by a row of foul blackened stumps which, in view of recent investigations, he thought might act as a producing factor.

Sir FELIX SEMON was not convinced that the local cause excited the spasm. He asked whether the lingual tonsil could be responsible for hemianæsthesia and paralysis. From the symptoms he personally would have great doubts as to the local cause.

Dr. HERBERT TILLEY related a case of glottic spasm in a particularly healthy-looking man (a butcher) aged forty-two. During the speaker's examination of the patient's throat a sudden suffocative attack ensued, the patient fell from his chair, and seemed in imminent peril of asphyxiation. A long-drawn inspiration terminated the attack, and the patient was quite well again. It seemed probable that the great irritability of the pharynx and larynx was due to excessive cigar-smoking, because while avoiding tobacco for two months he had no attack. At the end of this period he had a similar attack ten minutes after smoking his first cigar.

Case of Innocent Growth on the Right Vocal Cord. Shown by Dr. WILLIAM HILL.

The patient was a woman aged forty-eight, with a small red, innocent growth, springing from the upper surface of the right vocal cord near its anterior extremity, and slightly projecting into the glottic space, thereby causing hoarseness; this symptom had lasted about one year. The larynx at present was extremely intolerant to intra-laryngeal instrumentation. Unfortunately, the patient was from the country, and occupying a bed in hospital which should be placed at the disposal of a more serious case; under the circumstances, he wished to know the opinion of members as to whether he could, with any confidence, send the patient back to her doctor in the country (who was a skilled laryngoscopist), with the suggestion that the growth could and should be eradicated by applications of salicylic acid (5 per cent. in alcohol). He had no personal experience of the treatment, and hearsay evidence as to its value had been conflicting.

Dr. DUNDAS GRANT thought it a pediculated growth which habitually lay underneath the vocal cord. During the action of phonation it was forced up between the cords by the expiratory

blast, and it seemed to him that as soon as the patient drew a breath it entirely disappeared. He thought that to apply salicylic acid or any other chemical would be a waste of time. The growth could be most easily removed by operation.

Dr. LACK said he had never seen any good result from the use of salicylic acid.

Dr. BRONNER thought formalin much more efficacious than salicylic acid, but in the present case the forceps should be used.

Dr. FITZGERALD POWELL said, in view of the intolerance of this patient's larynx to operative measures, he would recommend swabbing the larynx with a solution of perchloride of iron as likely to cause the disappearance of the growth, which was a very small one, and appeared to him to grow from the upper surface of the cord, and not from below. He had not infrequently seen these small growths disappear under the systematic employment of this treatment.

Dr. VINRACE asked Dr. Hill if he thought it would be advisable to nip the growth off.

Dr. HILL, in reply, was glad to get an expression of opinion on the salicylic treatment. When the larynx had been educated to tolerance the growth could be removed easily enough with forceps, but that would take a long time, he feared, in this instance.

A Laryngeal Case for Diagnosis. Shown by Mr. ATWOOD THORNE.

The patient, a man aged forty-three, came to St. Mary's Hospital, on January 19, in a very excited condition, complaining that while drinking a cup of cocoa he felt great pain in the throat, and must have swallowed some broken china or something.

Owing to the patient's excitement the house surgeon was unable to get a good view of the larynx, but finding a slight wound on the tip of the epiglottis, was inclined to believe that some sharp substance had been swallowed, or had entered the larynx.

When seen on the 21st the cricoid cartilage was found to be swollen, the left ventricular band much crumpled, and in the arytenoid space was found a collection of muco-pus, and on removing this a gaping scar, as of a burst abscess, was visible.

There is no indication of tuberculosis in the lungs, and there is a history of syphilis dating back twenty-two years.

The wound of the epiglottis may have been due to an over-enthusiastic dresser passing a probang.

Dr. DUNDAS GRANT said the man had occasional loss of voice. Both vocal cords moved perfectly well, but there was an extra-

ordinary swelling of the left ventricular band. It was one of those cases in which at times the swelling either acts as a damper, by pressing on the vocal cord, or, getting between the cords, interferes with the production of tone. If the trouble was sufficiently serious to justify the introduction into the larynx of a cautery, he would recommend cauterization of the ventricular band.

Mr. ATWOOD THORNE said, in reply, that the ventricular band was certainly much swollen. The interest of the case lay in the fact that the man had a pain in the throat directly after drinking a cup of cocoa, thought that he had swallowed a piece of china, and on examination two days after a recent scar was seen in the inter-arytænoid space.

Case of Supposed Epithelioma of the Larynx. Shown by Drs. DUNDAS GRANT and WYATT WINGRAVE.

J. C——, male, aged fifty-three, a piano-maker, was first seen on December 11, 1900, complaining of loss of voice of twelve months' duration, commencing with slight huskiness, and gradually becoming more marked; there had been no pain except on vocal effort; deglutition was normal; there was no cough, but lately occasional dyspnoea, especially on exertion, accompanied by inspiratory stridor. He had lost two stone within twelve months. There was no personal history of syphilis or tuberculosis. His wife is tubercular, and he has lost two children with phthisis. The sputum is scanty, and no tubercle bacilli could be found; the chest, beyond a slight emphysema, appears to be normal. In the larynx there was seen a granular fringe along the whole length of the right vocal cord, and to a slighter extent below the most anterior portion of the left cord. The right half of the larynx was completely fixed, and some thickening was felt over the right ala of the thyroid. The opinion of the exhibitors was that it was a case of epithelioma, and they were desirous of having opinions as to whether a portion of the growth should be removed for examination, or the exploration effected by thyrotomy; they hesitated about removing a portion without receiving the patient's consent to a partial or complete extirpation of the larynx, should the diagnosis be confirmed.

Sir FELIX SEMON was not firmly convinced of its malignancy. Exactly the same appearance might be produced by either syphilitic or tuberculous infiltration. He certainly had seen malignant cases where there was very little more evidence than in this case, but he did not think the appearance absolutely typical. He would not

feel justified in removing the larynx, but he thought an exploratory thyrotomy quite justifiable.

Dr. DUNDAS GRANT said there was no evidence of tuberculosis in the chest and sputum. The man had not been put upon iodide of potassium, but there was no history of syphilis. Was it a case in which one should remove a piece for examination, or do an exploratory thyrotomy? If it was malignant, and any operation was to be done, the sooner the better. That was the position of the case.

PROCEEDINGS OF THE SOCIETY OF GERMAN SCIENTISTS AND PHYSICIANS.

Meeting at Aix-la-Chapelle.

CONJOINT SECTIONS FOR DISEASES OF THE EAR AND THROAT.

President, DR. SCHMITHUISEN.

The following papers were read :

Tertiary Syphilis of the Tongue, with Demonstration of Photographs and Patient. Shown by Dr. LIEVEN (Aix-la-Chapelle).

The patient shown, although the disease was completely healed, presented on his tongue the following tertiary forms of late syphilis : (1) Glossitis gummosa circumscripta profunda. (2) Glossitis sclerogummosa profunda. (3) Glossitis sclerogummosa superficialis.

The patient was particularly interesting, as he had a peculiar idiosyncrasy towards potassium iodide. The severe tongue lesions improved under long-continued energetic inunction, but tended to recur some weeks after the mercury was stopped. If a preparation of iodide, however, was prescribed, there resulted in two or three days a deep ulcer on each gumma.

Dr. Lieven thought that there was an excessive hyperæmia present, which instead of causing absorption of the gumma, produced inflammation and tissue necrosis. He, therefore, considered the condition an increase of the ordinary hyperæmia so necessary for the absorption of the new growth. The patient had been free from recurrence for a year; the cure was effected by decoctum sarsaparillæ.

Dr. HOPMANN (Cologne) had seen a similar case of syphilis of the tongue, which he described as glossitis hypertrophicans

papillaris. The tongue was covered from front to back with fungiform papillae.

Mercurial Stomatitis. Shown by Dr. LIEVEN (Aix-la-Chapelle).

The author said that the tartar of the teeth most frequently caused localized stomatitis. Saliva containing mercury is quite unimportant in the causation of stomatitis, and he considered the salivation, as a rule, was produced secondarily to the inflamed mucous membrane. Stomatitis, he considered, could always be avoided, at least in severe forms, by the modern method of treatment. The only method by which this cannot with certainty be achieved is the injection of insoluble mercurial salts, especially of gray oil.* He prefers salicylate of mercury to other preparations. In conclusion, he quoted the history of a man with severe stomatitis, who had so profuse a hæmorrhage from the gums of his incisor teeth that his friends thought the blood must have come from the stomach.

Mercurial Appearances in the Throat. Shown by Dr. SCHMIT-HUISEN (Aix-la-Chapelle).

The speaker regretted that so little was known of the effects of mercury on the throat compared with mercurial stomatitis, which is one of the best known mercurial lesions. The difficulty of examination and the relative rarity of the condition explains this want of knowledge. The signs of chronic mercurial poisoning of the throat begin at the base of the tongue, between the tubercles of the mucous glands and the lingual tonsil. The affected parts are characterized at first by dark smooth spots, which soon become white, and later grayish-yellow. The spots occur almost always before similar appearances in the mouth. He considered the diagnosis very difficult, especially the differential diagnosis from syphilitic papules. They are certainly rare in the lower part of the pharynx. A further differential point is brought out by the continued use of mercury. The mercurial lesion becomes worse, the papules heal.

Dr. HOPMANN (Cologne) had never seen typical mercurial lesions of the pharynx by themselves, but frequently along with lesions of the tongue and cheek.

* Gray oil. *Oleum cinereum*, an ointment made by triturating mercury to extinction with oil or liquid paraffin, varying in the amount of mercury from 1 to 33 per cent. *Oleum cinereum fortius*, a preparation made by shaking together 30 parts of lanolin (dissolved in from 100 to 200 of chloroform) with 60 of mercury, triturating until all the chloroform has evaporated and the mercury is completely divided, and adding an equal amount of olive-oil. — *Proc. of the Amer. Pharm Assoc.*, xxxvii., p. 385. (W. J. H.)

Dr. FISCHENICH (Wiesbaden) thought that little was yet known of the nature of mercurial stomatitis, in spite of its long-continued study; in one case, although the patient had only some fragments of his teeth in very bad condition left, yet every symptom of mercurial inflammation was absent.

Vibration Massage of the Upper Respiratory Tract by Means of Instruments. Demonstration on Patients. By Dr. BRAUN (Trieste).

In addition to an exhaustive discussion on the indications for the treatment, the paper dwelt largely on the methods which had been used by Dr. Braun for several years.

The Treatment of Typical Naso-pharyngeal Polypi, with Exhibition of Cases that had been Operated on. Shown by Dr. SCHMITHUISEN (Aix-la-Chapelle).

The operation is as follows: The growth is enclosed within the snare as high up as possible, then the snare is allowed to work by electrolysis for twenty-five minutes, the same snare is then connected with the galvano-cautery. The tumour is divided by the hot snare with hardly any hæmorrhage. Any remains of the tumour which may still impede breathing are destroyed by electrolysis; what is left over disappears of itself. Such polypi are peculiar phenomena of puberty, and always vanish spontaneously with increasing age.

Dr. HOPMANN (Cologne) was of the opinion that a major operation is not required, and agreed with Dr. Schmithuisen that one can, and should, always operate by the natural openings. Dr. Hopmann draws the soft palate forward with a special instrument constructed for that purpose, and removes at one sitting by the aid of chloroform the whole growth with scissors and raspatory. There is severe hæmorrhage in the rapidly-performed operation, which is easily controlled by pressure. He considers his method the quickest, and to be recommended on these grounds, that after the operation is finished, the hæmorrhage which threatened the life of the patient is at once put a stop to.

Dr. SCHMITHUISEN holds that the hæmorrhage is caused by obstruction, when the tumour is compressed in the narrow nasopharynx. It ceases after removal of a small piece of the growth. As soon as the snare is loosened, and the return of the venous blood is facilitated, the hæmorrhage ends.

Syphilitic Necrosis of the Nasal Floor. Shown by Dr. SCHMITHUISEN (Aix-la-Chapelle).

In cases where there are large and firmly adherent necroses of the nasal floor, Dr. Schmithuisen bores holes into the dead bone.

He can thus always easily remove the dead bone, as by this method its connections with the surrounding healthy bone are loosened.

Treatment of Syphilitic Necrosis of the Hard Palate. Shown by Dr. LIEVEN (Aix-la-Chapelle).

Dr. Lieven distinguishes on the roof of the mouth a primary gumma and a secondary form due to extension from the nose. Both affect the region of the raphe on the roof of the mouth. The second form is the more important, as it almost without exception causes perforation; while by the other, originating on the roof of the mouth, only a lamella of bone is separated. For the removal of sequestra which are firmly adherent, he bores into the bone and loosens it with a hook. By shaking twice daily demarcation occurs in eight to fourteen days, and it can then be removed. He cautions against too early use of an artificial plate, as this after a short time does not fit, owing to cicatricial contraction. He advises the application of a plug of cotton-wool to overcome the discomfort; two months after the resulting cicatrization a plate can be made, and six months later operative closure, provided there has been without anti-specific treatment no relapse in this time.

Leucoplasia of the Mouth, with Exhibition of Patients. Shown by Dr. LIEVEN (Aix-la-Chapelle).

Dr. Lieven brought forward the following theory of smoker's cheek (*Raucherwange*), by which he would explain the peculiar appearance. When the mouth is open, only the visible mucous membrane of the cheek is coloured; that covered by the teeth is always normal. At each draw of the pipe or cigar the mucous membrane is drawn inwards between the rows of teeth, and there flows into the mucous membrane each time a quantity of blood to take the place of the air removed by aspiration. Chronic hyperæmia, catarrh and epithelial hyperplasia are the result of such deleterious influence, the further stage of which is the resulting leucoplasia.

A Case of Bronchitis Fibrinosa. Shown by Dr. HOPMANN (Dresden).

He demonstrated some preparations under the microscope, which showed the fibrinous character with unusual distinctness in the expectorated coagula of fibrin; the latter formed a completely united cast of the smaller bronchi.

Bacteriology of Sinus Thrombosis. Shown by Dr. EICHORN (Coburg).

He found in two cases of thrombosis, in the contents of the sinus and vena jugularis, also in the pulmonary metastasis, in addition to staphylococci and diplococci, bacilli, which proved by culture and animal experiment to be those of malignant œdema. Examination of part of the jugular removed at the operation showed in places hæmorrhagic œdema of its walls. He emphasizes specially the virulence of mixed infection with aerobic and anaerobic organisms.

Syphilis of the Naso-pharynx. Shown by Dr. FISHENICH (Wiesbaden).

The speaker described this form at the outset as a localized form of syphilis, which was still unknown to specialists even in the more recent publications. The existence of an isolated nasopharyngeal syphilis without any other indication of the disease was not recognised. He then described some cases from his own practice.

Dr. HOPMANN (Cologne) did not agree that syphilis of the nasopharynx was a disease not well known by specialists. On the contrary, the works of Seifert, Gerber and numerous other authors show that this disease has latterly been thoroughly studied. The large number of publications have made this disease quite well known.

Dr. LIEVEN (Aix-la-Chapelle) described the danger of hæmorrhage following a tertiary lesion in the naso-pharynx. There have been several cases of this described, in which, after the loss of a necrotic part of a cervical vertebra, fatal or dangerous hæmorrhage has occurred. This has been observed both from the carotid and vertebral artery.

Dr. SCHMITHUISEN (Aix-la-Chapelle) has found the sphenoidal sinus several times affected in syphilis of the naso-pharynx.

Translated by G. T. GUILD, M.B.

Abstracts.

NOSE, Etc.

Furet.—*Trephining both Sphenoidal Sinuses through one healthy Maxillary Sinus.* "Archiv. Internation. de Laryngol., d'Otolog., et de Rhinol.," tome xiv., No. 1., Jan.-Feb., 1901.

It has already been suggested by Jansen (at the Moscow Congress, in 1897) to reach the sphenoidal sinus via the maxillary sinus when empyema of the former is complicated by similar disease of the latter. Luc followed Jansen in practising an almost identical operation. Furet has gone further, and has trephined the maxillary sinus in order to reach and treat a double sphenoidal sinus empyema. He gives details of his operation, which he performed upon a young girl, aged twenty-five years, with success. The author's conclusions are as follows:

While the nasal route can be utilized in simple cases in tractable patients, in whom the nasal fossæ are sufficiently large, the maxillary method is distinctly indicated in the following cases:

1. When the maxillary sinus also participates in the inflammation.
2. In all cases of sphenoidal sinusitis complicated with cerebral symptoms. It is then of great importance to act quickly and thoroughly. These cases are rare.
3. In all sphenoidal sinusites occurring in persons with narrow or malformed nasal fossæ.

Macleod Yearsley.

LARYNX.

Escat (Toulouse).—*Laryngeal Arthrites.* "Archiv. Internation. de Laryngol., d'Otolog., et de Rhinol.," tome xiv., No. 1, Jan.-Feb., 1901.

The author remarks that, while the nervous and muscular affections of the larynx have been made the subjects of numerous learned papers, the affections of the laryngeal joints have been singularly neglected. He discusses the difficulties arising from the similarity of symptoms between certain nerve-lesions and these joint affections; for example, crico-arytenoidean arthritis simulates paralysis of the recurrent, and crico-thyroidean arthritis that of the external laryngeal nerve. He suggests that it is very possible that many of the so-called paralyses of doubtful origin are in reality due to an arthritis or an ankylosis. Putting aside arthrites and ankyloses due to typhoid fever and tertiary syphilis, the author considers rheumatic and pseudo-rheumatic arthrites, acute, subacute, and chronic. Laryngeal arthrites have, however, been recognised by several observers, and a complete bibliography is given of their work. He then considers in detail the symptoms of these affections, giving illustrative cases.

Crico-arytenoidean Arthritis.—Briefly, the symptoms by which he would diagnose this variety are:

1. The existence or pre-existence of an acute catarrh of the pharynx and larynx.
2. Temperature.

3. The existence or pre-existence of extra-laryngeal polyarticular manifestations.

4. Painful dysphagia.

5. Dysphonia or partial aphonia in unilateral arthritis, complete aphonia in the bilateral form.

6. Dragging and suffocation in the bilateral form.

7. Phonophobia.

8. Local pain on coughing.

9. Slight local stickiness and redness of the prelaryngeal region (an inconstant symptom).

10. Quickly developed pain on pressure.

11. Tumefaction of the arytenoidean eminences visible to the laryngoscope.

12. Immobilization on adduction of the vocal cord corresponding, but without overriding, and without encroachment of the healthy cord on the middle-line.

13. Prominence of the cord on the side affected.

Crico-thyroid Arthritis.—The symptoms of this affection are :

1. Sudden appearance of aphonia after a cold, or in the course of a polyarticular rheumatism, acute or subacute.

2. Antecedent or concomitant symptoms of pharyngo-laryngeal catarrh.

3. Painful vocalization.

4. Laryngoscopic signs analogous to those of external laryngeal paralysis.

5. Pain on pressure of the crico-thyroid articulation at the level of the inferior cornua of the thyroid cartilage.

6. Pain on artificially drawing together the integuments over the thyroid and cricoid cartilages.

7. Persistent contraction of the crico-thyroid muscles.

Treatment is discussed in a very few words.

Macleod Yearsley.

Garel and Goullioud.—*A Nail impacted in the Right Bronchus for Two Months. Diagnosis by the Radiograph. Removal with the Electro-magnet. Recovery.* "Annales des Maladies de l'Oreille, du Larynx," etc., tome xxvii, No. 2, February, 1901.

This is the report of a case, sufficiently described in the heading, of a boy, aged eighteen months. Recovery was complete. The nail measured $2\frac{1}{4}$ inches long. It was extracted through a preliminary tracheotomy wound by means of an electro-magnet.

Macleod Yearsley.

E A R.

Allan, A. Percy.—*Facial Neuralgia due to a Hair irritating the Membrana Tympani.* "Brit. Med. Journ.," February 16, 1901.

A law student, aged twenty-one, had been suffering from acute paroxysmal neuralgia for three months. He had had no relief, although, following advice, he had had three teeth extracted and others that were decayed stopped. He was very depressed about himself, and had tried many remedies without gaining the slightest relief.

He described the pain as extremely severe, coming on at different times during the day, and often at night, lasting some ten minutes at a time. The pain was apparently distributed along the infraorbital branches of the fifth nerve. He described it as most acute beneath the left eye, from which point it seemed to radiate about the left side of the face, reaching as far as the ear; but he said that it did not affect the nose. There was no temporal pain, and the eyesight was perfect. Dental and ocular causes having been excluded, the left ear was examined, and the membrana tympani found much infected. On further examination a hair was seen lying along the meatus, and pressing with its end on the tympanic membrane. This was removed, and was a short head hair about three-eighths of an inch in length. A feeling of relief was expressed after the removal of the hair, and on questioning the patient, it was elicited that he had had tinnitus during the time that he had been affected. Subsequently he had had one or two slight attacks of pain during the first day or two, after which the attacks entirely ceased.

Jobson Horne.

Bezold, Fr. (Munich).—*The Functional Examination of Diseased Ears.* "Arch. of Otol.," vol. xxix., No. 1.

The "continuous tone series" is used for detecting total defects in any part of the range of audition, while for partial defects (diminished hearing-power) tuning-forks dying away are used after the manner of Hartmann. For Rinné's test *A* and *a* without clamps are found best.

The method of using functional tests is described, and the chief indications for their employment are mentioned: thus discrepancy between objective examination and diminution of hearing for speech, as, for instance, a rapid sinking of the hearing-power in the course of an acute or chronic purulent otitis; absence of objective changes in the membrane and middle ear, etc. Bezold recommends the universal adoption of Helmholtz's method of naming tuning-forks, and his own method of recording the results of Rinné's test.

Dundas Grant.

Brühl, G. (Freiburg-in-B.).—*The Rinné and Gellé Tests.* "Arch. of Otol.," vol. xxix., No. 1.

Rinné Test.—The divergent views of various writers are quoted. In all reports as regards Rinné's test the writer thinks the pitch of the fork should be named. (The abstractor holds that, in addition to the pitch, there should be stated the normal aero-ossal difference for the given fork—viz., the number of seconds it is heard opposite the meatus of a normal person after ceasing to be heard on the mastoid.—D. G.) The following phases of the Rinné test are enumerated:

1. Positive Rinné—positive for the deepest, and therefore all, tones.

2. Negative Rinné:

(a) Total negative Rinné—negative for all tones.

(b) Partial negative Rinné—positive for high tones, negative for low ones.

(c) Absolute negative Rinné—air-conduction absent for low tones.

When Rinné is negative for low tones only, there may be diagnosed a mild affection of the conducting apparatus. (Dench has pointed out the value of the test with tuning-forks of various pitch in diagnosis and prognosis.—D. G.) The author states that the result of Rinné's test is often modified by the co-existence of an affection of the auditory nerve,

in addition to one of the conducting apparatus. (The abstractor considers this incorrect, as Rinné is negative with a considerable obstructive lesion, whether there is simultaneous nerve-deafness or not. The apparent negative Rinné in cases of pronounced unilateral nerve-deafness must be kept in mind.—D. G.)

Gellé's Test.—Opinions and experiments are quoted, the result being that we may regard the Gellé test as a means by which we can learn the condition of the fenestra ovalis.

The following are the results of clinical tests with A^1 , C , cc^1 , and c^2 for Rinné's, and d^1 for Gellé's test:

1. If the Rinné test is positive, then Gellé is also unexceptionally positive, and the impaired hearing is due to nervous affections.

2. If the Rinné test is negative absolutely and totally, or up to c^1 , the Gellé test is unexceptionally negative, and the impaired hearing is due to stapes ankylosis.

3. If the Rinné test is negative below or up to the c limit, and positive above it, then the Gellé test decides whether a stapes ankylosis exists or not.

The author employed the tests mainly in that large and important class of cases in which there is, with a normal-looking membrane and no improvement on inflation, a high degree of deafness.

Dundas Grant.

Burnett, S. M. (Washington).—*A Series of Cases of Suppurative Disease of the Temporal Bone, with Comments.* "Arch. of Otol.," vol. xxix., No. 1.

1. Acute mastoiditis following influenza: The ear symptoms were of three weeks' duration. On operation there was found a fistula in the bone below the linea temporalis; the petrous bone was softened to an enormous extent, exposing a large area of dura mater. There was a mastoid swelling and pain, but no high temperature. No communication with the middle ear could be made.

(The extreme rapidity with which the bone breaks down is becoming well known, and should lead to early operation in acute, especially influenzal, cases.—D. G.)

2. Bezold's abscess in a white child of six years: No previous history of ear trouble. An abscess formed below the ear, extending far into the posterior triangle. On operation the mastoid cavity was found to contain some granulation tissue, and the tip of the process was in a state of necrosis. Recovery took place. The exceptionally early age of the patient is remarkable.

3. Suppuration of the mastoid in a child of six months, following a discharge from the ear of about ten days' duration: A swelling formed in the mastoid region. On incision pus was found oozing from small apertures in the bone. All disease was scraped away, and recovery took place. The writer notes the remarkable size of the antrum.

4. Suppuration of the mastoid in an elderly woman, following influenza, but without any history of discharge from the ear. Pain and swelling five months later led to operation. Pus issued from the bone at a depth of a quarter of an inch. There was extensive destruction, the lateral sinus being bare.

5. Influenzal mastoiditis in a woman aged seventy-two, the lateral sinus being found bare.

6. Extensive necrosis in both temporal bones in a negro girl aged

four: this started as the result of an acute otitis four years previously. Recovery took place after operation.

7. Necrosis of temporal bone, extradural abscess, death from purulent meningitis, in a negro boy two years old. There were also three tubercular tumours in the brain. Before death there was paresis of the arm and leg of the same side as the ear disease.

8. Necrosis of both temporal bones, with many sequestra, in a negro child aged three: three operations in three years; dura mater bare; recovery. There was evidence of facial paresis, and among other sequestra was one containing a portion of the vestibule and of a semi-circular canal. There remained a little hearing power and no vertigo.

9. Sudden acute purulent meningitis in a negro child four years of age, without symptoms of ear disease during life. There supervened tenderness over the mastoids, but no swelling. On post-mortem examination there was found extensive necrosis of the left petrous bone and mastoid cells. There was noted a purulent discharge from the nose a week before death.

10. Mastoiditis in a negro infant aged fifteen months. This was preceded by a discharge from the ear, and recovery followed operation.

The writer refers to the immunity from mastoiditis enjoyed by the adult negro as distinguished from the negro child, who is particularly liable to tuberculous disease of the bones; and mastoiditis seems to occur on very slight provocation, even without previous evidence of middle-ear supuration.

Dundas Grant.

Cullen, W. L.—*Foreign Body long retained in the External Auditory Meatus.* "Brit. Med. Journ.," December 8, 1900.

The patient, an old lady seventy-eight years of age, had complained more or less for thirty years of deafness in her left ear, which, as far as she could remember, had come on quite suddenly. The ear was full of wax and was syringed: a small round ball about the size of a pea discharged from the ear into the basin. This, on examination, was found to be a piece of tortoise-shell, which had broken off from one of the ornamental combs she used to wear over thirty years previously. The tympanic membrane was thickened and slightly vascular. After using Politzer's bag twice, the hearing was almost normal in the ear in question.

Jobson Horne.

Dufour, Clarence R. (Washington).—*Excessive Hæmorrhage following the Removal of a Myxo-fibroma from the Ear.* "Arch. of Otol.," vol. xxix., No. 1.

There was suppurative otitis of many years' duration, a polypus filling the meatus and an abscess in the region of the tragus. The polypus was removed by means of torsion with a wire snare, as it was extremely tough. The removal was complete, but was followed by the outflow of arterial blood. This was so severe that ligation of the carotid seemed necessary. However, under an anæsthetic the meatus was tightly plugged with gauze, which was left for four days. This was then removed, and the hæmorrhage did not recur.

(Moure reported before the International Otological Congress at Florence a very similar case.—D. G.)

Dundas Grant.

Knapp, H. (New York).—*A Fatal Otitic Abscess in the Left Temporal Lobe of the Brain, causing Word-blindness. Operation. Autopsy.* "Arch. of Otol.," vol. xxix., No. 1.

The abscess supervened in a child twelve years old, on a left-sided otorrhœa dating from childhood. When seen she had just had severe convulsions, and was excited and frightened, but conscious and rational. Her temperature was 101°, her pulse 100, and she had marked optical aphasia—inability to name objects shown to her. At the operation a small brown spot was seen on the dura, and a probe was introduced without pus being found. Nothing beyond the radical mastoid operation was carried out. The patient improved, but died suddenly a few days later, after a fall of temperature and pulse. There was found at the autopsy an abscess in the temporo-sphenoidal lobe, with a capsule of such density that the probe had pushed it before it, instead of puncturing it. The abscess had burst in front into the superjacent brain-tissue (whence the meningeal symptoms) and behind into the ventricles (whence the sudden death). Dr. Knapp points out that a probe is not a good exploratory instrument, and that an aspirating cannula or a narrow knife should be preferred. *Dundas Grant.*

Lake, R.—*Mercuriol as an Antiseptic in Diseases of the Nose and Ear.* December 15, 1900.

Mercuriol, for the information of those who are not acquainted with it, is a brownish-white powder, soluble in water, but insoluble in alcohol. It is a compound of mercury with nucleinic acid, and contains about 10 per cent. of mercury; therefore a 5 per cent. solution of mercuriol contains $\frac{1}{2}$ per cent. of mercury, and this in a form which is non-corrosive and non-irritant. It is, at the same time, an organic compound, and does not precipitate albumin, the general idea which mercuriol gives being that at one and the same time it is an antiseptic in the usually understood sense of the word, and will act indirectly on the protoplasm of the nuclei, more especially of the large white blood-cells, as the phagocytes, and thereby enable them the more readily to overcome micro-organisms and destroy them in larger quantities. One disadvantage of solutions of mercuriol is that one cannot make it up in large quantities, a week being probably the longest time in which it can be kept with safety. This, however, is equally true with that most useful antiseptic formalin; but there is no doubt that, in order to obtain the most efficient action of mercuriol, it requires to be employed, like chlorine, freshly made.

The author has used it in several cases, and his general impression is that mercuriol is the least irritating efficient antiseptic, and is specially suitable for irrigating cavities such as the maxillary sinus.

St. Clair Thomson.

May, C. H. (New York).—*A Case of Cerebral Abscess following Purulent Inflammation of the Middle Ear. Operation. Evacuation of Abscess. Death.* "Arch. of Otol.," vol. xxix., No. 1.

The abscess was in the middle convolution of the left temporo-sphenoidal lobe, about one inch from the surface, and therefore quite detached from the otitic source of infection. Two hours after the operation there came on contraction and rigidity of the left leg, divergence of the eyeballs and irregularity of pulse, death following some hours later. The abscess was found to contain streptococci. There

was no meningitis, no perforation into the ventricles, and no involvement of the sinuses.

The suppurative otitis dated from two years before, and the discharge had ceased for a year, to return with pain in the ear two weeks before the symptoms of cerebral abscess, excitement followed by semi-unconsciousness, with slow pulse and optic neuritis. The patient was treated on the day following the supervention of these symptoms *secundum artem*.
Dundas Grant.

PHARYNX.

Morton, J. P.—*Adenoid Vegetations*. "Canadian Practitioner and Review," August, 1900.

The writer makes a distinction between "hypertrophy of the pharyngeal tonsil" and "adenoid vegetations." He considers the former term applicable when the lymphoid tissue in the pharyngeal vault of Waldeyer's lymphatic ring is the part affected; and that the term "adenoid vegetations" should only be used when the scattered crypts surrounding the cerebral vault are likewise the seat of hypertrophy.

Morton's experience leads him to believe that 90 per cent. of all the cases that occur are the result of congenital processes; and that attacks of measles, diphtheria, scarlet fever, etc., only act as exciting causes, irritating to increase hypertrophy of the lymphoid tissue, which was abnormally present when the children were born.

Price Brown.

REVIEWS.

The Year-Book of the Nose, Throat and Ear. The Nose and Throat by G. P. Head, M.D.; the Ear by Albert H. Andrews, M.D. The Year-Book Publishers, 100, State Street, Chicago, 1901. Price \$2.

This is the second time that Dr. Head and Dr. Andrews have issued the Year-Book, and thereby earned the gratitude of the specialists. The year's work is greatly in advance of the last, and if the undertaking is only supported as it should be, there is no doubt but that it will in time become the record of the year's work, and be of great use to the student and earnest worker.

The habit of recording cases which have no real interest is to be deplored as unnecessary, and we would ask Dr. Head and Dr. Andrews to see whether they cannot do something to avoid this recording of uninteresting matter. The list of journals quoted from has sprung from 170 to 304, and will soon be quite complete.
R. L.

Atlas der Nasenkrankheiten. Enthaltend 356 Figuren in 475 Einzelbildern auf 38 Tafeln. Von Dr. ROBERT KRIEG. Third and fourth parts; F. Enke, Stuttgart; F. Bauermeister, Glasgow. 6s. each.

The following are depicted in these parts of this epoch-marking book: Fractures, abscesses, hæmatomata of the septum; nasal atresia,

stenosis, and synechiæ; rhinitis—acute, catarrhal, diphtheritic, fibrinous, chronic, and hypertrophic; polypoid degeneration and polypi; pseudo-nasopharyngeal polypi; hypertrophies of the septum; atrophic rhinitis and rhinitis sicca.

We feel the more convinced of the value of Dr. Krieg's work the further we get into it. The drawings, colouring, and text leave very little to be desired. We warmly recommend the book to all, whether specialists or not.

R. L.

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THE TREATMENT OF TUBERCULOSIS OF THE LARYNX.*

BY DR. JOHN SENDZIAK,
Warsaw, Poland.

BEFORE passing to the subject of this paper, I shall shortly refer to the gradual development of our ideas about the treatment, as well as curability, of so-called phthisis of the larynx.

The earliest observations we meet with on the local treatment of laryngeal diseases in general date back to the first century, but those on so-called phthisis of the larynx, however, only to the first half of the nineteenth century—namely, by Trousseau and Belloc, the authors of a work entitled "Phthisis Laryngea," under which name were understood at that time different pathologic processes such as syphilis, tuberculosis, and carcinoma.

The direct treatment, however, of tuberculosis of the larynx commenced with the moment of the epoch-making discovery of the laryngoscope in the year 1858 by Türk and Czermak; but although that treatment was practised with varying degrees of success, the disease continued to be regarded in the light of a *noli me tangere*.

M. Schmidt, of Frankfurt-on-Main, has the credit of directing the treatment of tuberculosis of the larynx to the modern method. This author in the year 1880 gave the basis to the rational—that is, the surgical—treatment of this disease. The subsequent development of endo-laryngeal surgery must be attributed mainly to

* A paper read at the Ninth Congress of Polish Physicians and Naturalists, held in Cracow, 1900.

the introduction of cocaine in the year 1884, for which we are largely indebted to Jellinek, an assistant of Professor Schroetter in Vienna.

We can surely say that cocaine makes a new epoch in the treatment of laryngeal tuberculosis, permitting the execution of endolaryngeal operations, to say nothing of its value as a means of relieving pain and facilitating swallowing in the more advanced forms of the disease.

In the following year we have to notice a further development in the treatment of these lesions. I refer to the lactic acid treatment, a valuable addition to the therapy, for which we are beholden to Professor Krause of Berlin. After a test of fifteen years this remedy continues to hold a foremost place and to be regarded as one of the best.

At about the same time the surgical treatment of laryngeal tuberculosis, which had been begun by M. Schmidt, found an extremely energetic propagator in Heryng, who developed the surgical technique to its present state of perfection.

From that time to the present no departure of importance has been made from the method of local treatment introduced by these two authorities. Numerous monographs have appeared, some large, some small, all dealing with the treatment of the disease, which has also frequently been a subject for discussion at medical congresses. Of the latter I might mention here a very animated discussion upon the question during the International Congress in Rome, and another more recently in Moscow.

In Poland in the year 1888, during the fifth Congress of Polish Physicians and Naturalists in Leopold (Lemberg), Sokolowski read a paper on the curability and local treatment of the disease, basing his remarks upon the valuable material from his polyclinic as well as from his private practice. This material was in the following year (1889) fully worked up* by the author of this report, at that time a clinical assistant.

To sum up the history of the treatment of laryngeal tuberculosis, three principal periods are to be noted :

1. Period of therapeutic nihilism, lasting to the year 1880; *i.e.*, to the appearance of M. Schmidt, author of the surgical treatment in this disease.

2. Period of extreme optimism, caused by the energetic propaganda of Heryng, who recorded so many striking results obtained by him by the surgical treatment of laryngeal tuberculosis that it almost seemed we had attained to a reliable method of dealing

with such a terrible disease. Soon, however, were to be heard the voices of those calling for reserve, which marked the

3rd, or the latest, period in the treatment of laryngeal tuberculosis—the period of equilibrium.

In the year 1890, at the International Congress in Berlin, in discussing the overrating of the surgical treatment of laryngeal tuberculosis, Professor Schroetter was of the opinion, and in this I agree, that we are never able to remove so completely all that is pathologically affected, as to prevent recurrences, and that it is not every larynx that can tolerate such energetic treatment.

During the following International Congress in Rome in the year 1894 the question of the local—i.e., surgical—treatment of laryngeal tuberculosis was again the subject of animated discussion.

Again, during the International Medical Congress in Moscow, in the discussion upon Gleitsman's paper, "On the Progress in the Treatment of Laryngeal Tuberculosis since the last International Congress," Professor Chiari expressed himself in general in a pessimistic manner on the possibility of a permanent cure of laryngeal tuberculosis, which he had never observed.

Is laryngeal tuberculosis curable? This is a question of great importance upon which I must dwell before passing to the treatment of this disorder.

Up to the year 1887, and even later, it was generally thought that tuberculosis of the larynx was an incurable disease—that it was, as I have said, something of the nature of a *noli me tangere*; as, for instance, cancer of the larynx. Fifteen years ago Orth expressed himself on the above question in the following manner: "Ich habe weder selbst je eine gänzlich ausgeheilte Larynx tuberculose gesehen, auch ist meines wissens ein solcher Fall anatomisch beschrieben und untersucht."

We ought not to have to wait long for such a case of undoubted recovery, for in the year 1887 Heryng, in his work on "Surgical Treatment of Laryngeal Tuberculosis and its Curability," described a case occurring in an old woman aged seventy, with a fibrous form of pulmonary phthisis, as well as cicatrization of tubercular ulceration on the posterior laryngeal wall, which was demonstrated under the microscope by the author to be tubercle. From that time the question of the curability of laryngeal tuberculosis was definitely solved; moreover, clinical observation has more than once proved the possibility of complete recovery from this disease, both by *spontaneo modo* as well as, still more readily, under the influence of suitable treatment.

Such cases every specialist has had occasion to observe. On

the other hand, it must be admitted that recoveries are exceedingly rare, and that certain favourable conditions are necessary, and of these a predisposition of the organism to the production of fibrous tissue in the lungs, as well as in the larynx, is most essential.

After this somewhat lengthy preface, I pass to the subject of my paper—the treatment of tuberculosis of the larynx. This consists in general and local treatment. The latter may be divided into therapeutic, surgical (endo-laryngeal), and surgical (external). I shall confine myself to the local therapeutic and general treatment.

The local therapeutic remedies may be grouped in three divisions—the milder remedies, the more active, and the palliative.

The *milder remedies* we use in the initial stages of laryngeal tuberculosis—as, for instance, in cases of catarrh, limited, it may be, to the posterior wall of the larynx or to one vocal cord (chor-ditis unilateralis)—which, as is known, is characteristic of the disease. These remedies are also useful in the later stages, with extensive ulcerations and infiltration of the larynx, when the general condition, as well as that of the lungs, contra-indicates the more drastic local applications.

In the earliest stages local treatment is as a rule superfluous; insufflations of powders at times are indicated, such as resorcin, or of astringent drugs such as alumen, or inhalations—Ems water, menthol, balsamum peruvianum, etc.

In the very advanced tuberculous processes of the larynx and lungs, with hectic symptoms, as fever, weakness, sweats, and evidence of destruction of the lungs, depending on secondary infection with staphylo- and streptococci, antiseptic drugs before all are needed in the form of inhalations. For instance, of those above-mentioned balsamum peruvianum, or insufflations of iodol, arystol, dermatol, euophen and orthoform, the last, besides being an antiseptic, possesses also a marked analgetic action.

Closely connected with this latter group is the *symptomatic treatment* of laryngeal tuberculosis. I refer to the desperate cases, in which treatment, in the curative sense of the word, being of no avail, is conducted only with a view to afford relief to the patients in their sufferings and to facilitate the taking of nourishment. In these cases cocaine and eucaine render excellent service, being remedies with which it is impossible to dispense. It is best to apply these drugs in the form of powders, which the patient himself can do by means of specially constructed insufflators. Cocaine and eucaine can also be applied in the

form of solutions, and then we use them stronger (20 per cent.). Pastilles composed of cocaine and antipyrin, as recommended by Avellis, are also useful in these advanced cases.

I regard, however, as quite superfluous the submucous injections of cocaine on the posterior wall of the larynx by means of a special syringe, as advised by Heryng and Fraenkel. Of late cocaine in the symptomatic treatment of laryngeal tuberculosis has found a great rival in orthoform, which was introduced as a therapeutic agent by Einhorn in 1897, and was specially used in the treatment of laryngeal tuberculosis by Freudenthal of New York in the year 1899. It is really an excellent drug, which, applied either in the form of powder or in connection with menthol (Freudenthal: Menthol, 1·0 to 5·0, 10·0 to 15·0; ol. amygd. dulc., 30·0; vitelli ovorum, 25·0; orthoform, 12·0; aq. dest. q.v. ad 100·0: fiat emulsio), by means of brushings or laryngeal syringes, produces anæsthesia and relief from pain, lasting usually a couple of hours, and at times as long as twenty-four hours.

In cases I have treated with orthoform I have observed not only an analgesic action, but also a favourable action upon the tuberculous lesions themselves, so that I personally regard this drug as a very precious acquisition in the local therapy of laryngeal tuberculosis.

In addition to these two powerful drugs, which are necessary, especially in the severe forms of laryngeal phthisis, we are sometimes obliged to have recourse to morphia, which may be subcutaneously injected in the region of the larynx. More recently Freudenthal has advised extractum suprarenale for the relief of pain.

I now pass to the important group of remedies of a more potent nature and producing a more marked reaction. Here also, as in the surgical treatment, absolute contra-indications are the miserable general state of the patients, as well as very extensive changes in the lungs.

Of these remedies, before all we must place first *lactic acid*, introduced, as I have already remarked, in the year 1885 by Krause, and which is still, in my opinion, one of the most efficacious drugs in the treatment of laryngeal tuberculosis; and this opinion is shared by most of the experienced laryngologists. Schroetter, in his excellent lectures on diseases of the larynx, expresses himself as to this drug in the following manner: "Till now I know no other drug with which we can obtain so much amelioration as well as, relatively, such a considerable number of recoveries." Of this opinion is also, among others, Schech.

In order to obtain, however, favourable results, we must apply the remedy rationally, as well as choose the cases suitable for the treatment.

In the first place, I agree entirely with Schech that we must begin with stronger solutions—namely, 50 per cent.—and quickly pass to the pure lactic acid. Generally the drug must be applied energetically by rubbing, and until a brown coloration of the surface is produced by the lactic acid coming in contact with the blood.

It is also important that the intervals between the applications should be of sufficient length (*i.e.*, one or two weeks) to allow the complete separation of the dead epithelium. I agree with Schech that the most suitable cases for the lactic acid treatment are those in which ulceration has taken place. I have, however, observed favourable results also in cases of tuberculous infiltration, especially of the epiglottis. I ought to mention here that I am not in favour of the submucous injection of lactic acid, as recommended by Hagen, Heryng, and Gleitsmann. In suitable cases the combined treatment is of service—that is, the rubbing in of the pure lactic acid after a previous curettement of the degenerated tuberculous tissue, especially in the posterior wall of the larynx.

Another very efficacious remedy in the treatment of laryngeal tuberculosis is *phenolum sulphuricum*, introduced by Ruault of Paris in 1895, and afterwards recommended, among others in Poland, by Heryng and Przedborski, who even regard it as a specific in this disorder. We apply it with a brush in 20 to 40 per cent. solution. This drug, in my opinion, is especially suitable for the treatment of ulceration—not too extensive—of the vocal cords and the posterior wall of the larynx, and is less useful in treating lesions, such as extensive infiltration, of the epiglottis.

In the same group of pharmaceutical remedies which seem to act favourably in laryngeal tuberculosis we must include *parachlorphenol*, first used in the treatment of this disease by Simanowski of Petersburg in the year 1894. This drug, however, has not until recently found many supporters, amongst whom are Spengler and Logucki. The drug is applied in 5 to 10 per cent. solutions in glycerine.

I must say that my experience so far with parachlorphenol is not too favourable; the vomiting it provokes is an obstacle to its use.

Mention must here be made of *menthol*, recommended by Rosenberg in 1885 to be applied in 10 to 20 per cent. oily solutions by means of a laryngeal (Stoerk's) syringe. The superiority

of this drug to the previous one is in its more pleasant taste and anæsthetic action.

Of other remedies seeming to have more or less favourable action in laryngeal tuberculosis I may briefly mention the following: The mixture of phenol with menthol, as well as the new drug menthorol in 5 to 15 per cent. solutions (Sokolowski); 10 per cent. carbolic in glycerine (Gottstein and Kayser); creosote, 1·5 per cent.; spir., 40·0 per cent.; glyce., 60·0 per cent. (Cadier, Balmer); balsamum peruvianum with collodium (Schnitzler); 1 to 5 per cent. creolin (Schadewaldt, Schnitzler); 10 to 20 per cent. resorcin (Fronstein); 50 per cent. peroxide of hydrogen (Gavino); 1·1000 perchloride of mercury (Balmer); lignosulphit, recommended of late by Heindle; acidum chronicum (Heryng, Bayer); pyoc-taninum (Scheinmann, Rosenberg, Schech); calcaria phosphorica, 10·0 per cent., cocaine 0·2 per cent., ol. menth. pip. gtt. v. (Schnitzler, Rethi); iodoform (Beetz, Kuttner); diiodoformi 8 per cent.; cocaine, 0·08 per cent. (Leduc); zincum chloratum (Lannelongue's method), in the form of injections, recommended by Caster; creosote and guaiacol (1 to 5 per cent.), or with menthol (5 to 10 per cent.) for subglottic injections, applied by Botey and myself in laryngeal and pulmonary tuberculosis; formaldehyde, $\frac{1}{2}$ to 10 per cent. (Gallagher); 4 per cent. para-monochlorphenol with 25 per cent. lactic acid (Botey); electric light (phototherapy, Freudenthal); finally, the newest remedy, thiocol (0·1 to 0·15 per cent.), with cocaine (0·4 per cent.) and boric acid (2·0 per cent.), finds a very great advocate in Fasano.

After having tried almost all the above remedies in laryngeal tuberculosis, I must say that the greater number of them might be removed without being missed.

I pass now to the *general treatment* of tuberculosis of the larynx, a very important part, which, unluckily, the too ardent adherents of surgical treatment in this disease in many cases disregard, forgetting that laryngeal tuberculosis, as a primary process, exists only exceptionally, and that it is almost always combined with a similar process in the lungs.

The general treatment is, before all, climatic. We must, however, send to the summer and, especially, winter climatic resorts only such patients in whom the general health, as well as the condition of the lungs, is still satisfactory and whose means permit of the journey and stay being made under conditions most favourable for such patients.

The condition of the larynx must also be taken into consideration. Minor changes, which do not require local treatment, are

usually suitable for such journeys. The more extensive tuberculous lesions in the larynx, such as require special local treatment, must be treated at home. This is rendered necessary by there being but few climatic resorts in which we find the specialist sufficiently acquainted with laryngology.

The contra-indications for sending patients with laryngeal or pulmonary tuberculosis to climatic stations are sudden decline of general health, fever, gross changes in the lungs, diarrhœa, dysphagia consequent upon gross lesions in the larynx, stenosis of the larynx requiring constant and special care in order to avoid dyspnœa threatening life, hæmoptysis, and last, but not least, the want of the suitable means.

I pass now to the choice of climatic resorts for laryngeal phthisis. I agree with Schech that the most suitable are those which afford sufficient humidity and are absolutely free from dust as well as rapid changes of temperature. Ajaccio, Capri, and perhaps Cannes and San Remo, may be mentioned from amongst the winter resorts, and Falkenstein and Reichenhall of the summer resorts.

Besides the purely climatic resorts, there are others in which the mineral waters, as well as the pure mountain air are of service in the earlier stages of the disease. To these places belong Szczawnica (in Poland), Ems, and Gleichenberg.

Although the treatment of laryngeal tuberculosis has undoubtedly made great progress, complete and permanent cures are still very rare. We must not forget that the so-called cured cases of laryngeal tuberculosis die sooner or later from pulmonary tuberculosis, and until we have established a remedy for pulmonary tuberculosis it is idle to speak of recovery from laryngeal tuberculosis in the full sense of the word.

THE BRITISH CONGRESS ON TUBERCULOSIS.

THE programme of the British Congress on Tuberculosis, to be opened in London on Monday, July 22, under the patronage of the King, will be read with more than ordinary interest by all engaged in the study and treatment of diseases of the upper air passages. At a glance it is apparent that tuberculosis will be discussed in all its amplitude. The work will be divided into four sections, which will meet every morning from Tuesday till Friday, from 9.30 to 1.30. The official subjects will be first disposed of, some of which will be jointly discussed.

In addition to the work of the sections described below, the following public addresses will be given to the whole Congress—viz., on Tuesday afternoon (the 23rd) by Professor KOCH, of Berlin; on Wednesday afternoon by Professor BROUARDEL, of Paris; on Thursday afternoon by Professor MCFADYEAN, of the Royal Veterinary College. On Friday afternoon there will be a final meeting to pass resolutions arising out of the work of the Congress.

In connection with the Congress, a Loan Museum will be formed to illustrate the Pathology, Treatment, and Prevention of Tuberculosis. It will consist of two sections: (1) Pathological and bacteriological preparations and specimens illustrating tuberculosis in man and animals, and charts and documents bearing upon the historical, geographical, and statistical aspects of the subject; (2) Plans and models of hospitals and sanatoria.

It is hoped that any preparations or specimens in connection with work contributed to the Congress will be exhibited in the Museum. A fully descriptive Museum Catalogue will be published. It is desirable, therefore, that all descriptions should be forwarded at the latest on or before *June the first*.

Definite information about the date and place for forwarding exhibits will be sent to intending exhibitors. In the meantime, the Museum Committee are anxious to obtain as much information as possible concerning the material available for exhibition and the amount of space required.

The Reception Committee are making arrangements for the entertainment of members by conversazioni and receptions. The Earl of Derby has intimated his desire to receive the members of the Congress at a reception to be given by him on one of the evenings. A Ladies' Committee is being formed, under the presidency of the Countess of Derby, for the purpose of arranging entertainments for ladies. Saturday, July 27, will be given up to excursions to Sanatoria and other places of interest.

The work of the sections as at present arranged will be as follows:

Section I.—State and Municipal.

In this section detailed consideration will be given to the following questions, and resolutions relative thereto will be submitted when deemed necessary.

DIVISION I.—STATISTICAL.

What conclusions may be drawn from the statistics available as to connection between the Mortality from Phthisis and the conditions contributing to it?

In this connection regard will be had to the following points :

1. The Behaviour of Mortality from Phthisis in England and Wales during the Reign of Her late Majesty Queen Victoria.
2. The Geographical Distribution of Phthisis in England and Wales.
3. The Incidence of Phthisis Mortality in Particular Occupations.
4. The Age and Sex Distribution of Phthisis.
5. The Distribution of Phthisis in the several Sanitary Areas of London.
6. The Statistical Evidence against the Heredity of Phthisis.
7. *Tuberculosis* in Relation to Milk-supply.
8. A Statistical Study of Phthisis in Relation to Soil.
9. The Indications for Future Statistical Research.

DIVISIONS II. AND III.—THE NOTIFICATION OF TUBERCULOSIS.

How can the Voluntary Notification of Advanced Tuberculosis be best encouraged and effected? What has been the experience of compulsory notification in the States of New York, Buffalo, and Washington?

THE INFLUENCE OF HOUSING AND AGGREGATION.

(a) By what means can a higher standard be attained in respect of personal cleanliness, and in the case of households invaded with phthisis? How far are additional lighting and ventilation necessary to insure a much higher standard of bacteriological cleanliness, and what additional legislation, if any, is required to render these advantages available?

(b) How may cleanliness, with a sufficiency of light and pure air, be secured in factories and workshops, and in places of assembly generally, including steam-ships, railway-carriages, and other means of transit?

DIVISION IV.—CONTROL OF MILK AND MEAT SUPPLIES.

(a) What changes are requisite in existing legislative measures and administration for improving the conditions of cowsheds and insuring the health and cleanliness of milch cows?

(b) What *exact* statistics are there to show the certainty or otherwise of the tuberculin test, and by what means may the application of this test towards the eradication of tuberculosis be best secured?

(c) What relative advantages in the prevention of tuberculosis are secured by the use of sterilized milk, pasteurized milk, and milk obtained from herds free from tuberculosis, and kept properly cooled down from the time of milking to the time of reaching the consumer? How far is it possible to bring about the general use of one or the other?

(d) What administrative measures are necessary in order to prevent the sale to the public of tuberculous meat?

DIVISION V.—THE PROVISION OF SANATORIA.

(a) What are the best means of promoting the erection of Sanatoria for phthisical patients in which (1) the curable may have the best chances of recovery afforded to them; (2) the incurable, while ceasing to be a source of danger to the community, may have their lives prolonged and receive the comfort necessary to their condition?

(b) What are the causes which have led to the recent development of Sanatoria for Consumption in Germany and in the United States, and how far may the same influences be expected to operate in Great Britain, her colonies, and dependencies? Would it be in the interests of the industrial insurance societies or other public bodies to contribute towards the erection and maintenance of such institutions?

Section II.—Medical, including Climatology and Sanatoria.

On Tuesday, July 23, a discussion on "Climatology" will be opened by Dr. C. THEODORE WILLIAMS and Dr. BURNEY YEO: "What Influence has Climate on the Treatment of Consumption? and how far can Cases be Grouped for Treatment in certain Climates?"

On Wednesday, July 24, a discussion on "Therapeutic and Diagnostic Value of Tuberculin in Human Tuberculosis," uniting with the Section of Pathology, to be opened by Dr. HERON. Professor KOCH, of Berlin, has consented to take part in the discussion.

On Thursday, July 25, a discussion on "Sanatoria for Consumption" will be opened by Professor CLIFFORD ALLBUTT.

On Friday, July 26, Papers. Demonstrations will be given on "Cases of Skin Tuberculosis and their Treatment" and "The Use of Röntgen Rays in Diagnosis."

Section III.—Pathology, including Bacteriology.

DISCUSSIONS.

Tuesday, July 23: "The Morphological and Physiological Variations of the *Bacillus tuberculosis*, and its Relations (a) To other 'Acid-fast' Bacilli; (b) To the Ray Fungus and other Streptothrices." To be opened by Dr. ALFRED MOELLER, Dirig. Aarzt der Heilstätte, Belzig. bei Berlin, and Dr. WILLIAM BULLOCH, Bacteriologist and Lecturer on Bacteriology and General Pathology to the London Hospital.

Wednesday, July 24: "The Tissue-changes and Constitutional Effects produced by the various Constituents of Tuberculin"; Joint Discussion in common with the Medical Section, to be opened by Professor KOCH.

Thursday, July 25: "The Varieties of Tuberculosis (Morbid Anatomy and Histology)," to be opened by Professor Dr. C. BENDA, Urbankrankenhaus, Berlin; Professor SHERIDAN DELÉPINE, Professor of Pathology, Victoria University (Owens College), Manchester; and Professor C. J. HAMILTON, Professor of Pathology, University of Aberdeen.

Friday, July 26: "Mixed Infections in Tuberculosis."

Amongst others who are expected to take part in the work of this section are Dr. ROUX and Professor METCHNIKOFF, of the Pasteur Institute, Paris.

Section IV.—Veterinary (Tuberculosis in Animals).

DISCUSSIONS.

Tuesday, July 23: "The Diagnosis of Tuberculosis in Animals during Life," to be opened by Professor DEWAR, F.R.C.V.S., Principal of the Royal (Dick's) Veterinary College, Edinburgh.

Wednesday, July 24: "Tuberculosis and the Milk-supply," to be opened by Mr. JOHN A. W. DOLLAR, M.R.C.V.S.

Thursday, July 25: "Tuberculosis and the Meat-supply," to be opened by Mr. JAMES KING, M.R.C.V.S., Chief Veterinary Inspector to the Corporation of the City of London.

Friday, July 26: "The Legislative and other Measures necessary to combat Tuberculosis amongst Animals," to be opened by Professor MCEACHRAN, F.R.C.V.S., D.V.S., Chief Veterinary Inspector to the Canadian Government.

The official languages of the Congress will be English, French, and German, and authors of papers are requested to supply beforehand abstracts for translation. Each speaker opening a discussion will be limited to thirty minutes, and each subsequent speaker to ten minutes.

The offices of the Congress are at 20, Hanover Square, London, W. All communications should be addressed to the Hon. Secretary-General, to whom an abstract of every paper and communication must be sent at the latest on or before June 15. All correspondence relative to the Museum should be addressed to the Hon. Secretary of the Museum Committee.

THE LONDON POLYCLINIC.

"'Tis the taught already that profit by teaching."

THE inadequacy of the post-graduate teaching in London has long been recognised. Some years before his death Professor Billroth remarked, in one of his addresses, that those practitioners who desired to enlarge their field of studies need not direct their steps to the British capital, and both teachers and editors in the United States have openly advised their graduates to lose no time in England, but to push on at once to the schools of Vienna and Berlin. In spite of many well intentioned efforts in various directions this defect in the scheme of medical education in London has not been remedied, although there is no city in the world which is the focus of so large an area of interests, and none where there is such a wealth and variety of clinical material.

It seems that the chief drawback in the development of the post-graduate teaching of London has been the want of one co-ordinating centre where post-graduates could not only secure teaching on certain subjects under one roof, but where they would quickly obtain all possible information as to opportunities for study, and be put in communication with the various hospitals and institutions where they could obtain what suited them. The Polyclinic and Medical Graduates' College is designed to meet this want, and, considering the short time it has been in existence,

and the inevitable opposition which anything new meets with in this country, it is surprising to note in the recently published annual report the large amount of work which that institution has already accomplished. The teachers and students of laryngology and otology should both view it with favour, as it appears to promote the interests of all. So great is the afflux of patients to the special clinics of London, and so long and tedious are the methods we now have to employ in testing the hearing, exploring the nasal sinuses, or investigating a laryngeal condition, that teachers are quite unable to give the time required for initiating students into the technique of examination. On the other hand, they are, as a rule, only too well pleased to have skilled assistance in unravelling a case or employing details of treatment. The Polyclinic gives small short practical classes in otology and laryngology, and as the number in a class is limited, and the accommodation ample, the teacher is able to see that his students are well grounded in the use of instruments and the methods of examination in a short six weeks' course. These students are then not only ready to profit by the opportunities offered by the numerous throat and ear clinics of the Metropolis, but they are the more welcome as they can at once take a practical share in the clinical work of the teacher, instead of being simply spectators and a drag upon his time.

As in many other new undertakings, it is only the sinews of war which are wanting, and it is hoped that a sufficient sum will be collected at the festival dinner, on May 22 next, to put the institution on a business footing. Believing, as we do, that the success of the Polyclinic will further the teaching of laryngology and otology in all the special clinics of London, we wish the undertaking every success.

Mr. Arthur Balfour in the chair will be supported by the Lord Chancellor, such personages as Lord Avebury and Lord Iveagh, the Lord Mayor and Sheriffs, and most of the leaders of the profession. The presence of Lord Strathcona from Canada, and of the Agents-General of the various colonies, not only imparts to the banquet an Imperial aspect, but the name of Professor Osler, of Baltimore, gives it a still wider interest, and shows that "*la politica ci divide, ma la scienza ci unisce.*"

NOTES.

THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY will hold its seventh annual meeting in the New York Academy of Medicine, in the city of New York, on May 23, 24, and 25. The following amendment to the constitution which was proposed at the last annual meeting will be voted upon: "All candidates for admission to the Society shall be required to present a thesis when requested by the Council; and also, if desired by the Council, such thesis shall be read before a general session, or before the section in which the candidate resides."

The next meeting of the OTOLOGICAL SOCIETY OF THE UNITED KINGDOM will take place at Edinburgh, in the Hall of the Royal College of Physicians, Queen Street, on May 11, at 11 a.m. Mr. Charles A. Ballance will open a discussion on "The Opening and Draining of Cerebral and Cerebellar Abscesses arising from Middle-Ear Suppuration."

THE BOLETIN DE LARINGOLOGIA, OTOLOGIA, Y RINOLOGIA has recently been published in Madrid, and will appear monthly, under the editorship of Dr. Juan Cisneros.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

Sixty-fourth Ordinary Meeting, March 8, 1901.

E. CRESSWELL BABER, M.B., *President, in the Chair.*

The following cases and specimens were shown:

A Case of Malignant Disease of the Larynx in a Man aged Forty-seven, treated by Thyrotomy and Removal of the Diseased Area, shown Seven Months after Operation. Shown by Sir FELIX SEMON.

Mr. F. J. B——, aged forty-seven, was sent to me on July 4, 1900, by Dr. Maguire, of Stony Stratford. He had been suffering from hoarseness for several months past. This was the only symptom.

On examination the right vocal cord was found to be much

tumefied in the middle part and ulcerated in front; the ulceration extended into the subglottic cavity, and the mobility of the cord was much affected; the left side was quite free. Iodide of potassium failed to exercise any effect, and thyrotomy was performed on July 16, 1900. When the larynx had been opened, it was found that the new growth was a good deal more extensive than it had appeared from laryngoscopic examination. It not only occupied the whole right half of the larynx, completely destroying the right vocal cord, but also extended below the anterior commissure to the front part of the subglottic cavity, and attacked the front part of the lower surface of the left vocal cord. On the other hand, it was well circumscribed. When the growth was removed it was found that it deeply infiltrated the thyroid cartilage, both on the right side of the subglottic cavity and on the left side of the anterior commissure. It was removed together with an area of apparently healthy tissue, and the parts were very energetically scraped, so that everywhere healthy cartilage was visible. Considering the condition just described, the chances with regard to recurrence appeared rather doubtful. The parts removed were examined by Mr. Shattock, who reported that the growth was a typical squamous-celled carcinoma. The patient made an uninterrupted recovery, and returned home on July 26, ten days after operation.

Four months later Mr. Cecil Powell, of Stony Stratford, reported for Dr. Maguire that the patient was getting on very satisfactorily, his general health had much improved, he had gained in weight, and the voice, which had been quite aphonic, had slightly increased in strength.

When I saw him on February 11, *i.e.*, seven months after operation, he was, as he is now, in excellent health, there being not the least trace of recurrence, and the voice, although still hoarse, had gained a good deal in strength since the operation. On phonation the remnant of the left vocal cord somewhat crossed the middle line, but only in front reached the cicatricial ridge which replaces the removed right vocal cord.

The PRESIDENT, on behalf of the Society, congratulated Sir Felix Semon on the success of his case; the result was most satisfactory, and the patient had a wonderfully good voice.

Mr. P. DE SANTI asked Sir Felix Semon the percentage of absolute recoveries in the cases on which he had operated. He knew the general percentage, but it would be interesting to hear what were his individual figures.

Sir FELIX SEMON hoped the voice would continue to improve. His experience was that the improvement continued up to the end

of the first year, and even after that in some cases. In reply to Mr. de Santi, he said his last cases, namely, those of the past eighteen months, had not been tabulated, but excluding these, his permanent cures were 83·3 per cent.

Specimen of Retention Cysts of the Lymphoid Follicles of the Vallecule. Shown by Mr. H. BETHAM ROBINSON.

This specimen was removed from a healthy man, aged twenty-five, who complained of a lump in his throat and occasional pain in the neck.

On examination, both by means of the tongue depressor and the laryngeal mirror, some whitish *lumps* were seen at the base of the tongue, standing out above the level of the mucous membrane, and situated about the outer margin of the vallecule; on the right side was a single large one, the size of a sixpence, and on the left side were three smaller ones.

Under cocaine they were removed with scissors and forceps.

The histological examination of these growths corroborates the clinical diagnosis. They consist of tonsillar tissue with retained products in the follicles.

The specimen seemed to him worth bringing to the notice of the Society, as he could not find any record of this condition.

Case of Chronic Laryngitis with Thickening over the Cricoid Posteriorly. Shown by Mr. H. BETHAM ROBINSON.

The patient, a man aged forty-four, complained of aching pain at the back of the neck and some pain on swallowing. There was no history of tubercle or syphilis: no cough, and no loss of flesh. His voice was husky and weak. There was general chronic laryngeal catarrh, with marked thickening of soft parts in the middle line posteriorly, and also definite subglottic thickening of the true cords.

Under the application of chloride of zinc all the symptoms and signs of catarrh had disappeared, with the exception of the posterior thickening.

Two Cases of Recent Perforations of the Septal Cartilage. Shown by Mr. H. BETHAM ROBINSON.

The first case was of tuberculous origin, and occurred in a lad aged twenty, who first noticed both his nostrils blocked in January, 1899. After a little while there was discharge from the right nostril, and later from the left. There was no pain except when the nostrils were completely blocked by crusts.

At the beginning of February, 1901, he was found to have a circular perforation in the septal cartilage, with thickened margins covered by gray, watery exuberant granulations. These were curetted away, and lactic acid, 20 per cent., rubbed in, after which iodoform ointment was applied. He had very much improved under this treatment.

The second case occurred in an engine-driver, aged forty-three, who complained of discharge from right nostril.

When first seen there were black crusts on either side of the cartilaginous septum, but no evidence of a perforation could be discovered by means of a probe. On the left side there was a small angular spur.

Over the right temple was a small indurated spot, and there was enlargement of the pre-auricular and cervical glands, probably secondary to the spot.

There was no history of tubercle, but a definite one of syphilis eighteen years before.

When next seen, sixteen days later, there was an oval perforation in the cartilage only, without any thickening of the edges, and the glands in the neck were breaking down.

The question here was whether the perforation, limited as it was to the cartilage, was induced by the trauma (picking), or whether syphilis played any part in its production.

The PRESIDENT said that the first case was undoubtedly tubercular, and that the other might be either a syphilitic lesion or a simple perforation. The bone was not exposed, and the perforation was entirely in the cartilage, which was in favour of its being of a simple character.

Dr. DUNDAS GRANT asked if Mr. Robinson had seen the case at the stage of the gumma.

Mr. BETHAM ROBINSON said the patient referred to when first seen had simply a black mass where the perforation was now situated, which looked very much like necrosed cartilage. There was no hole then, but when he next saw the case he found the perforation in its present position. The septum broke down very rapidly. The softening glands in the neck might possibly be of syphilitic origin.

A Case of (?) Sarcoma of Tongue and Fauces. Shown by Mr. H. BETHAM ROBINSON.

The patient, a married woman, aged forty-nine, was first seen on February 20 last, and then gave the following history. She had noticed no symptoms before a month ago. Her throat then

felt ulcerated, and something seemed to burst; there was slight bleeding, but no matter. The bleeding had not been repeated, and there was no pain or dyspnoea, but with the increase in size of the tumour eating and drinking had become difficult. Her appearance corresponded with her acknowledged good health. There was no history of syphilis or tubercle.

On examination over the left posterior half of the tongue there was a somewhat circular swelling, the edge of which was raised fully one-eighth of an inch above the surface of the tongue. It extended backwards and downwards, involving the left tonsillar region by the side of the epiglottis. The tongue movements were remarkably free, and the growth, though extensive superficially, evidently did not penetrate to any depth into the substance of the tongue. The surface of the swelling did not seem ulcerated, and (on February 20) there was only one slightly enlarged gland at the angle of the jaw.

Since the patient was first seen the glands on the left side have become considerably enlarged and matted; this might be explained by an attack of influenza during the past few days.

The pathologist considered the tumour to be a mixed sarcoma, but Mr. Robinson thought that syphiloma was by no means improbable. This view was to some extent borne out by the following points: the age of the patient, her good health, the rapid growth, the absence of pain, and the tardy involvement of glands. On this supposition, iodide of potash had been given for the past week, with some improvement.

The PRESIDENT remarked on the interesting nature of the case. Its character was doubtful. Antisyphilitic treatment ought to be tried.

Mr. SPENCER thought from the clinical appearance and from the microscopical specimen that the case was one of gumma.

Sir FELIX SEMON asked if the painlessness was not in favour of syphilis as against malignancy.

Mr. BETHAM ROBINSON, in reply, said the growth was called "sarcoma" because this was the opinion expressed in the pathologist's report. He favoured syphilis himself.

Case of a Male, aged Twenty-Six, with the Left Vocal Cord in the Calcaric Position, Right Facial Palsy, and Paralysis of the Right Genio-Hyoglossus and the Left Half of the Soft Palate. Shown by Dr. HAVILLAND HALL.

T. I—, aged twenty-six, Corporal 6th Lancers. Has had five and a half years' service in India. Has since been in South

Africa. Has not had fever. Acute rheumatism in July, 1900. Admits gonorrhœa, but no history of syphilis.

Patient was on active service in the recent South African campaign. Two days after embarking for England from Cape Town patient first noticed a difficulty in swallowing. This steadily increased, and reached its maximum in fifteen days. Two days after landing at Southampton he first noticed a difficulty in speech, which is now so pronounced. This also gradually increased, and became stationary in about nine days. This period was also marked by the first appearance of the hacking, brassy cough, which was very distressing on admission into hospital. Patient had not noticed the right facial paralysis or the weakness on the right side until they were pointed out to him in the hospital.

There is no history of headache, fits, or vesical or rectal trouble during the development of the present illness, and it is remarkable that the patient has never had to lie up, or been in any way incapacitated from going about while the symptoms have been manifesting themselves.

Condition on Admission.—No headache, vomiting, or optic neuritis; intellect clear; no aphasia; speech markedly affected. Difficulty with labials and linguals to some extent, but great hoarseness also.

Eyes react to light and accommodation; no ophthalmoplegia of any kind; no nystagmus; paralysis of whole of right seventh, and deafness of right ear; paralysis of right genio-hyoglossus; tongue cannot be deflected to left side; palsy of left side of soft palate; left vocal cord in cadaveric position.

Both sterno-mastoids and trapezii act equally well. Marked weakness on right side of body (both limbs). Both knee-jerks abolished; no ankle-clonus; plantar reflexes normal.

No sensory disturbance of any kind in body or limbs; some blunting of sensation in fauces, palate, and posterior pharyngeal wall.

A disseminated subacute polio-encephalitis is suggested as the probable cause of the condition.

The patient has had iodide and mercury in full doses, but without any apparent amelioration of his symptoms.

Case of Extreme Deflection of Septum to Right Side, causing almost Complete Unilateral Obstruction, in a Male aged Twenty. Shown by Dr. PEGLER.

In this case there was considerable deviation of the right nasal bone, with discoloration and thickening. The patient sought advice more for the disfigurement than for the obstruction to breathing or

deadness of his voice. There was a history of a fall at age of three. The case was shown to elicit from members whether in such an extreme case as this there seemed a prospect of a good result from a sawing operation, or whether one of the methods of fracturing and forcible straightening of the septum appeared preferable.

Dr. HERBERT TILLEY thought the best treatment would be to saw off the projection in the right nostril. It was not a suitable case for Asch's operation, because the space in the left nasal cavity was already none too large for breathing purposes, and the result of Asch's operation would be to still further occlude the left side without making much difference on the right. The great thickening of the nasal bone on the right side was interesting. According to the patient, this had been present since the fall which caused the septal deflection. It would seem to be one of those cases of traumatic periostitis of the bone examples of which had already been shown to the Society at previous meetings.

Dr. PEGLER, in reply, thanked the members for their suggestions. He should try the saw, as suggested in the first instance, as he had had on the whole better successes in these cases by that means than by performing an Asch or one of its modifications. The careful use of splints or adhesion preventers would be an important part of the after treatment.

Case of Malignant Disease (Extrinsic) of the Left Side of the Larynx in a Male aged Fifty-Six. Shown by Dr. PEGLER.

In this case there was also a malignant involvement of some glands on the same side of the neck. The case was shown to ascertain the feeling of members as to the question of performing complete extirpation, the patient being willing to submit to any operation proposed for his relief. The history only extended back four months; voice not affected.

Mr. P. DE SANTI was strongly of opinion that the case should be left severely alone. The man had a large mass of glands on the left side, which were very hard and fixed. There were sure to be other glands deeper down, and it would be impossible to remove these, and therefore impossible to remove the whole disease.

Case of Malignant Disease of the Tonsil. Shown by Dr. JOHNSON HORNE.

The patient, a man aged sixty, states that the symptoms of the throat affection from which he is suffering are of not more than five months' duration. At first he experienced a soreness on the

right side, worse on swallowing; this steadily increased, and now deglutition is most difficult and painful.

There is considerable glandular enlargement on the right and also on the left side, and obvious swelling about the angle of the jaw, and under the chin there is a discharging sinus.

The jaw can be only partially opened, and the tongue cannot be protruded. The right tonsil is enlarged, extending across the middle line, on the surface of which is an ulcer with thickened edges. The ulceration is extending on to the soft palate.

Recently he has experienced pain in the region of the left tonsil. There is no history of syphilis obtainable. He abstains from spirits, and only smokes half an ounce of tobacco a week in a clean pipe. Since February 26 he has taken 30 grains of iodide of potassium a day, and has experienced relief.

The case is shown in the hope of eliciting suggestions, as to etiology, and for affording relief by either medicinal or operative measures.

Case of Total Extirpation of the Larynx. Shown by Dr. GLEGG for Mr. HARVEY.

When admitted to hospital, this patient, a man aged forty-eight, was not in good general condition.

On examination, a sessile growth the size of a large bean was seen situated on an infiltrated base just below the right aryteno-epiglottidean fold, and running obliquely down over the ventricular band, and hiding the anterior two-thirds of the vocal cord. The right side of the larynx was fixed, and the posterior third of the vocal cord, which was alone visible, was seen to be motionless and white. The left side of the larynx and the vocal cord moved freely. There was an indefinite thickening on the right side of the neck opposite the level of the thyroid cartilage (enlarged gland?). The respiration was comfortable, although there did not seem to be very much room. The voice was hoarse. The patient could only take fluids, owing to obstruction to the passage of solids, but had no pain.

History.—Until six months before operation the patient never had any trouble with the throat. About that time he had a little difficulty in swallowing, and a feeling of gurgling in the throat. About two months before operation he had pneumonia, his temperature reaching 105° , and suffered from great dyspnoea, so much so that tracheotomy was contemplated. During the next two months he was hoarse on and off, gradually getting worse; there was increased difficulty in swallowing, the cough was often severe, and there was much phlegm in the throat, and occasional slight earache. He could

swallow solids until two days before admission. Had been a heavy smoker and also drank freely. He had suffered from winter cough, and lately some wasting. There was a history of syphilis twenty-five years ago; he had been taking iodide of potassium without any benefit. A piece of the growth was removed and examined microscopically, and the diagnosis of epithelioma was confirmed.

On July 25, 1900, the operation of total extirpation of the larynx was performed by Mr. Harvey, and it was then found that on the right side, at the level of the inferior cornu of the thyroid, the growth had perforated into the neck through the posterior part of the crico-thyroid membrane.

The patient's health remained good and the local condition satisfactory up to December, 1900, when he presented himself for examination, and a large, hard, irregular gland was found and removed from the sheath of the jugular above the level of the great cornu of the hyoid on the right side. He has now a Gluck's artificial larynx, whereby a loud whisper can be produced and conversation can readily be carried on, and his health appears to be quite satisfactory.

Case of Extreme Elongation of the Uvula. Shown by Dr. H. J. DAVIS.

This patient, a male aged fifty-two, is the subject of left hemiplegia and old nasal and laryngeal trouble. He sought relief for stridor and dyspnoea associated with complete abductor paralysis of the right cord.

The cords now move well, and there is no stridor, and I am simply showing him as a curiosity for another reason. He has the longest uvula I have ever seen. It hangs like a pigtail from his fauces, and when he protrudes his tongue—which organ is also of unusual length—you can see without the help of a spatula the uvula lolling on to the epiglottis.

Dr. DAVIS, in answer to a question, said the man had a slight cough, but the physical signs in the chest accounted for it. The patient did not wish to be operated upon. There was slight anæsthesia of the pharynx.

Sir FELIX SEMON said he thought the scarring would account for the anæsthesia of the pharynx.

Specimens of Post-nasal Growths removed "en Masse" with a Curette. Shown by Dr. H. J. DAVIS.

These specimens, besides demonstrating the size to which such growths may develop, show :

1. Two lateral masses attached to the median raphe.
2. Another specimen of the same, in which the growth is studded with white specks, similar to those observed in follicular tonsillitis.
3. A mass, at the free border of which is an ulcerated area containing pus and calcareous matter. This was removed from a child aged seven, with enlarged cervical glands and probably tubercular.
4. A central mass with a largish vessel entering the upper surface.

They have been preserved in spirit since last June, and are therefore much shrunk, but the sulci and convolutions are very well marked.

Case of Submucous Hæmorrhage of the Soft Palate. Shown by Mr. DE SANTI.

This occurred in a man, and was the size of a walnut. It had appeared suddenly whilst eating some crusts of bread, and was in all probability due to bruising therefrom. He had had two similar attacks, once on the back of the tongue and once underneath the tongue in the floor of the mouth.

When first seen by Mr. de Santi there was an ulcer in the right glosso-epiglottic fossa, on both sides of which there were enlarged veins. The hæmorrhage from the back of the tongue had probably come from the right glosso-epiglottic fossa.

The man was not a "bleeder."

Unfortunately all traces of the hæmatoma had by now disappeared, and also the ulcer already referred to.

Drawing of Congenital Fenestration of the Faucial Pillars. Shown by Dr. WATSON WILLIAMS.

This was shown in reference to the cases and drawings brought forward at the previous meetings of the Society. It depicted another case of probable congenital malformation.

Case of Fixation of the Left Vocal Cord and Empyema of the Right Maxillary Antrum. Shown by Dr. DUNDAS GRANT.

Frances T—, aged forty-four, married, came under my observation on February 14, 1901, complaining of hoarseness and dyspnoea on exertion and a frequent catch in the breathing. The hoarseness had been present to a slight degree for from eighteen to twenty years, and had been gradually getting worse. On examination the left vocal cord was found to be absolutely fixed in

the median position, its edge being markedly concave. Both cords had lost their lustre, and were distinctly congested. There appeared to be an abnormal degree of fulness round the base of the arytenoid cartilage in the left hyoid fossa. There was slight movement of the left cornicula. The movement of the right vocal cord was not quite complete. There appeared to be a rounded fulness under the left vocal cord, but this proved to be due to a shadow cast by a very dark greenish pellet of inspissated muco-pus adhering to the lower surface of the right vocal cord. On inspection of the naso-pharynx there was found to be a small collection of muco-pus in the neighbourhood of the right middle turbinated body, and on anterior inspection there was found a polypoid enlargement of the middle turbinated body. On transillumination the right antrum showed comparative opacity, and when it was punctured a considerable amount of fœtid muco-pus was washed out. The frontal sinuses were perfectly translucent. There is a slight flattening of the bridge of the nose, attributed to compression at birth.

She is the twelfth of a family of fourteen, of whom only two others survive. The brother, two years older than herself, died at fourteen of scarlet fever. Her father lived to very old age; her mother died at forty-four of dropsy, probably from heart disease. There are believed to have been several miscarriages. The patient has had seven children, of whom two have died; no miscarriages. She is somewhat anæmic, the palate is paretic, the pupils contract to light, and the knee-jerks are normal. The expulsion of the inspissated muco-purulent crusts in the larynx has been greatly facilitated by the inhalation of turpentine in warm water, and by the occasional injection of 10 per cent. menthol in olive oil into the trachea, the voice having become much clearer and the breathing much freer. She has been washing out the nasal passages, and it is proposed to puncture the antrum without delay. There is no evidence of abnormality in the thorax, and the laryngeal affection is probably maintained by the nasal suppuration.

Dr. DE HAVILLAND HALL thought it was an affection of the joint rather than a paralytic one. There certainly seemed to be on comparison with the right cord a difference in the shape, the left arytenoid being more round and full.

Dr. DUNDAS GRANT was glad to hear Dr. Hall's confirmation of his own opinion. The swelling was extremely small, and consequently left room for a considerable difference of opinion.

Case of Tumour of the Vocal Cord in a Boy. Shown by W. G. SPENCER.

This boy, aged twelve, has a tumour obscuring the right vocal cord, also a swelling in the right leg.

Huskinness in speech was first noticed a year ago, which has increased, until now he is very hoarse.

The swelling in the right leg began five years ago, after a blow from a stone. It disappeared, to return six months ago. The patient presents no other evidences of inherited syphilis. In the larynx there is nothing abnormal except a tumour, which obscures the right vocal cord. The swelling is red in colour, has a smooth glistening surface, and shows no sign of ulceration or hæmorrhage. When the glottis closes it seems to come in contact with, and then to pass somewhat over, the left vocal cord. But the right vocal cord vibrates freely during vocalization, as shown by the fact that the vocal fremitus to be felt in the crico-thyroid space seems to be equal on the two sides.

The swelling in the leg involves the upper and inner surface of the tibia; the skin is discoloured; two apparently periosteal nodes are to be felt on the tibia, from which extends backwards to the popliteal space an induration of the skin and subcutaneous tissue. The swelling is tender, and there is pain, especially at night. The femoral glands below and the iliac glands above Poupart's ligament are a little enlarged, but soft and discrete.

Dr. DE HAVILLAND HALL asked if anyone would have suggested that the laryngeal condition was of syphilitic origin from the local appearances without reference to the tumour in the leg. To his mind, the cord gave no suggestion of a specific lesion. He thought that it was a tumefaction rather than a distinct tumour, and he should have had no idea of suspecting syphilis unless he had seen the leg.

Dr. LAMBERT LACK thought that some members might remember a similar case shown to the Society by Dr. W. H. Kelson. In this case also there was no definite sign of inherited syphilis. The indefinite outline of the swelling on the ventricular band and the fixation of the cord pointed to its being of an inflammatory origin.

Dr. STCLAIR THOMSON said there was nothing in the appearance of the laryngeal condition indicative of a specific lesion. It agreed with what was commonly described as prolapse of the ventricle, but which was really inflammatory hypertrophy of the ventricle of Morgagni. Perhaps the case might be treated first with antisppecific remedies to see what the result would be before resorting to surgical or other treatment.

Dr. BOND did not think it was specific, and he doubted whether the leg was, for there was a distinct history of injury at the beginning.

Mr. SPENCER, in reply, said the cord was not fixed; vocal fremitus was obtained equally on both sides. He thanked Dr. Lack for recalling the case of Dr. Kelson to his mind. This might be a gummatous infiltration. With regard to Dr. Bond's remarks to the effect that the tumour in the leg might be due to the stone which injured the boy five years ago, it was rather a long time for a traumatic osteitis to be gradually going on. The injury might have localized the gumma in that particular position. He would treat the case with iodide of potassium and show it again in a month's time.

A Laryngeal Case for Diagnosis. Shown by Dr. PERMEWAN.

The patient, a man aged fifty-five, was sent to him four weeks ago suffering from dysphagia.

On examination a small circular white tumour about the size of a sixpence, low down on the back of the pharynx, could be seen on depression of the tongue. Laryngoscopically there was swelling of both aryteno-epiglottic folds, and behind the right arytenoid cartilage there was a whitish, granular-looking polypoid swelling. The left side of the larynx and left vocal cord were quite immobile, there being apparently fixation of the cord very near the median line.

The small growth was removed with a snare, and on examination was pronounced by a pathologist to be "inflammatory." The patient was ordered iodide of potassium. Three weeks afterwards the patient was seen again, and there was some apparent recurrence of the pharyngeal growth, but otherwise the appearances were unchanged. Dr. Permevan desired the opinions of the Society on the nature, prognosis, and treatment of this case.

Sir FELIX SEMON would not commit himself definitely, but he was inclined to think that the various projections in the pharynx on the left and right side originated from one and the same general infiltration, which also caused the fixation of the left half of the larynx. He thought the whole thing was malignant.

Mr. SPENCER thought that it might be syphilitic, but if not that it was most likely malignant. He had shown a large number of cases to Dr. de Havilland Hall at the Westminster Hospital, in which malignant disease of the lower part of the pharynx had gone unnoticed for a long time. The primary growth in that situation was exceedingly small. In this connection he instanced the case of

a man who had a growth for a long time not quite as large as a threepenny-piece, and indurated glands on each side of the neck. He had seen six cases in two years of malignant growth of the lower portion of the pharynx, and in one or two there were indurated glands in the neck, these latter having been sent to him with the request to take away the glands; in none could he see any chance of doing good by surgery.

Dr. DUNDAS GRANT brought before the Society about a year ago a man with an extremely small growth in the wall of the pharynx, similar to that seen on the left side in Dr. Permewan's patient. His case was made easier in diagnosis by the involvement of the glands. There was room for some doubt as to whether or not it was malignant so far as its appearance was concerned, but the extreme hardness on palpation made it pretty evident what the real nature of the case was. Eventually the man died in the Cancer Hospital of malignant disease. He was disposed to think the present case one of malignant disease. It was certainly singular to have a large growth on one side and the cord fixed on the other.

Dr. BOND was disposed to think it malignant, though one might be led astray by the pathological report on the piece removed, which was reported to be of an inflammatory nature. Evidently there was extensive mischief. It was very uncommon to see two separate patches of apparently malignant growth, but the intervening tissue was no doubt quite infiltrated. Commonly, when one examined masses of this nature with the fingers, one made out very evident hardness and induration of the growth and surrounding parts. In this case the growth was quite soft. He showed such a case some three years ago. He thought this case a similar one, and that it was malignant.

Dr. FITZGERALD POWELL remarked that, with all due deference to the distinguished opinions which had been given, he could not help having a strong suspicion that the case might prove to be specific in character; he had elicited the fact that the man's wife had had three miscarriages, and he certainly thought that he should be treated by antisppecific remedies.

Dr. PERMEWAN, in reply, agreed on the probable malignant character of the case. He would, however, give iodide of potassium freely, and report the result to the Society. He thanked Dr. Bond for the suggestion as to palpating these growths as well as examining them laryngoscopically.

A Laryngeal Case for Diagnosis. Shown by Dr. BENNETT.

P—, male, aged thirty-one, a teacher, was first seen in September, 1900, on account of hoarseness of one month's duration. Examination of the larynx revealed the presence of what appeared to be a small granulating surface immediately below the anterior commissure of the cords, and involving to a very slight degree the anterior inner margin of the left vocal cord. On two or three occasions this surface was curetted and a small amount of granulation tissue removed. Nothing had been done to it for the last three months. The voice is now better, though not clear. There is still a small swelling visible, and the opinion of members of the Society is invited as to the nature of the condition.

Dr. STCLAIR THOMSON had perhaps not listened attentively to Dr. Bennett's description of his case, but he had obtained a very complete view of the whole length of the cords, and on phonation no thickening was visible in the anterior commissure. On phonation a slight thickening was seen in the anterior subglottic region. This was not an uncommon condition; it did not interfere with the action of the cords, and he therefore thought that the cause of any impairment of voice must be sought for elsewhere.

THE OTOLOGICAL SOCIETY OF THE UNITED
KINGDOM.

A MEETING of this Society was held on Monday, February 4, the President, Sir W. B. DALBY, in the Chair.

Dr. DUNDAS GRANT showed an elderly woman in whom he had performed a *radical mastoid operation for cholesteatoma*, preserving the lining membrane and forming Körner's plastic flap with the skin of the subjacent cartilage, so as to remove the resiliency and admit of the formation of a large meatus. The patient insisted on leaving the hospital at the end of a week. Unfortunately, the skin lining united at an insufficient depth, forming a diaphragm with a small opening in it. He therefore showed this as an instance of defective after-treatment, and not as illustrating the principle of preserving the cholesteatoma membrane.

Dr. Grant showed also a boy upon whom he had performed the *radical mastoid operation for cholesteatoma* in March, 1900. The membrane was carefully preserved, the contents of the cholesteatomatous cavity being gently scraped out and the cavity swabbed with a solution of chloride of zinc. The patient left the hospital in ten days, and it is reported that from the end of four

weeks the ear was perfectly dry. On examination on the day of the meeting, there was found a small mass of cerumen and slight desquamation of the cavity, but not a drop of pus.

Dr. HILL questioned whether the lining in the boy's case would stand the peroxide of hydrogen test for the presence of pus.

Mr. C. BABER thought that it was not always necessary to transplant epithelium, as some cases healed up without this being necessary.

Dr. McBRIDE thought that the plan of leaving the lining membrane of the cholesteatomatous cavity was wrong in principle. He thought that recurrence would take place.

Dr. URBAN PRITCHARD thought that it was important to destroy all traces of the lining membrane. His practice was to swab out the cavity with pure carbolic acid. In the case of the first patient shown, he thought that another operation was necessary.

Mr. BALLANCE considered that, in the case of the first patient shown, another operation should be performed. He did not consider it good practice to leave any portion of the lining membrane behind.

Dr. DUNDAS GRANT, in reply, urged that the cholesteatoma membrane was a reasonably good imitation of skin, the desquamative inflammation being favoured by its being in a cavity with a narrow neck (like a bottle), so that desquamation took place just as it did in the umbilical depression of a fat person. When, however, the cavity was opened out by operation into a shallow, wide-mouthed hollow (like a basin), and the lining membrane was exposed to the air, the surface dried up, desquamation was reduced nearly to that occurring physiologically on the surface of the skin, and the products found such a free exit as to be quite harmless. He held that there was nothing essentially malignant about the lining of a cholesteatoma, and that its dangers arose from its physical situation.

Dr. MILLIGAN showed a male patient upon whom the *radical mastoid operation* had been performed for chronic suppurative disease of the epi-tympanum and adjoining mastoid cells. The antro-tympanic cavity had been successfully grafted; healing had taken place within four weeks, and the hearing-power had remarkably improved.

Mr. P. DE SANTI showed a patient upon whom an operation had been performed for *cholesteatoma*, and another patient who had been operated upon for mastoid disease with gangrene of the deep soft structures and emphysema of scalp tissues.

Dr. STCLAIR THOMSON showed a patient (shown also at a previous meeting) upon whom *ossiculotomy* had been performed for "attic" disease.

Mr. CHEATLE said that there was still discharge present, and that he considered there was still disease present within the attic. He advised removal of the outer attic wall.

Dr. MCBRIDE also considered that there was still disease present.

Mr. YEARSLEY recommended removal of the outer attic wall.

Mr. P. MACLEOD YEARSLEY showed a patient suffering from *injury of the labyrinth*.

Mr. C. A. BALLANCE read the notes of a *fatal case of temporal bone pyæmia*. At the autopsy the pars petrosa and a portion of the occipital bone were in an advanced state of decay. No secondary pyæmic deposits were found anywhere in the body.

Dr. ADOLPH BRONNER showed a microscopic section of an *epithelioma of the cutaneous external meatus*, which was first mistaken for mastoid disease, and made some general remarks upon malignant disease of the external auditory meatus, which he did not consider to be so very rare as was usually supposed, he himself having seen five or six cases within the last few years.

Mr. BALLANCE considered such cases rare, as also did Dr. MACNAUGHTON JONES.

The PRESIDENT remarked that he had only seen one such case before.

Dr. H. TILLEY asked if in the cases seen by Dr. BRONNER hæmorrhage had been a common symptom.

Dr. URBAN PRITCHARD said that he had seen very few cases of malignant disease arising in the tissues of the external meatus.

Mr. A. H. CHEATLE showed a specimen and microscopical section of a case of *tuberculosis of the middle-ear lining membrane* in an infant, and also a specimen showing a congenital gap in the handle of the malleus.

The PRESIDENT related the case of a *bullet wound through the brain and cerebellum*, leaving no after-effects beyond loss of hearing upon one side.

Mr. C. H. FAGGE read the notes of a *fatal case of extradural and cerebellar abscess*.

Dr. MILLIGAN showed a microscopic section (with drawing) of an *incus removed from a case of tuberculous disease* of the middle ear, showing tuberculous infiltration of the bone.

Dr. URBAN PRITCHARD read the notes of a case of *removal of an impacted meatal sequestrum* facilitated by previous decalcification.

PROCEEDINGS OF THE AUSTRIAN OTOLOGICAL SOCIETY.

January 29, 1901.

PROFESSOR POLITZER, *President, in the Chair.*

A Case in which Pyemic Symptoms subsided after opening the Sigmoid Sinus. Shown by Dr. BIEHL.

This was a case of mastoid suppuration in which the symptoms did not subside after operation. Headache continued, the temperature rose to 105°, with rapid fluctuations, and a rigor occurred four days after operation. When exposed, the sinus showed pulsation, and its wall was not discoloured; but as it was obvious from the symptoms that rapid septic absorption had been taking place, and as no focus was visible, the sinus was opened. It bled profusely, and was immediately plugged, but the result of the bleeding was apparently most favourable. All bad symptoms subsided, and recovery set in. Häftmann recommended opening the sinus in cases with signs of increased cerebral pressure—brain congestion.

Professor URBANSCHITSCH thought possibly the second operation had opened some suppurating cells which had been overlooked at the first operation.

Dr. BIEHL said this was not so.

Hysterical Dizziness following the Radical Operation Shown by Dr. SINGER.

Vertigo was present before the operation, but it disappeared afterwards, and did not recur till some exuberant granulations were scraped away from the meatus. Unilateral headache and pain in the ear were also complained of. The patient's descriptions of her dizziness varied greatly. Sometimes everything seemed to turn round her; again she felt as if aboard ship; or the ground seemed to be opening under her feet and she sinking into it. There was no tinnitus, deafness, nausea, vomiting, or nystagmus, such as always occur from injury of the healthy labyrinth.

Professor Politzer thought it possible that a small sequestrum might have been disturbed, or that granulations might have invaded the labyrinth through the fenestra.

Professor URBANSCHITSCH agreed with the diagnosis.

Dr. HAMMERSCHLAG remarked that tinnitus and vertigo occurring in hysterical persons generally indicated organic disease of the ear. The severity of the vertigo might be out of all proportion to the gravity of the aural affection.

Frambæsia Syphilitica of the Auricle. Shown by Dr. SINGER.

The concha, incisura intertragica, and nearly the whole orifice of the meatus were occupied by a grayish-red swelling. It was raised about 6 millimetres above the surrounding skin, and its surface was lobulated and thinly coated with pus. The meatus was in great part filled by warty-looking growths of a grayish-red colour, there was a free discharge of pus, and considerable pain in the ear. The middle ear was suppurating.

A Case of Perichondritis of the Auricle after the Radical Operation. Shown by Dr. ALT.

It came on about six weeks after the operation, was treated by free incisions, and healed without much disfigurement.

Professor URBANSCHITSCH thought such cases were always due to sepsis.

Professor POLITZER considered malnutrition of the parts an efficient cause.

Chronic Otitis, Caries of the Mastoid, Sudden Outbreak of Meningeal Symptoms; Operation; Exposure of the Middle Ear, Middle Cerebral Fossa, Sinus, Posterior Fossa, and Cerebellum; Cure. Shown by Dr. HAMMERSCHLAG.

A girl of fifteen with otorrhœa of ten years' standing began to have earache and continuous unilateral headache. Suddenly one morning intense headache came on. She became pale and collapsed, and vomited profusely. Pulse 72° regular. The same evening she was completely unconscious, there was divergent strabismus, the pupils were dilated and reacted sluggishly. Pulse 60°; respiration 50°. *Operation.*—Antrum, attic, and tympanum full of thin fetid pus; sinus surrounded by pus, its walls discoloured, but collapsed and empty. The tegmen was removed; the dura bulged, but looked normal. The posterior fossa was then opened. The dura appeared thickened, reddened, and coated in parts with discoloured exudation. On incising the dura, the cerebellum bulged

strongly into the opening, and was incised in two directions, but no pus escaped. Consciousness returned immediately after the operation, and the patient complained of pain in the head and neck; pulse slow and regular. Later in the day she became unconscious, and remained so all night, crying out at times, and passing urine and feces involuntarily. Next morning she was again conscious. Temperature normal. Hyperæsthesia of the legs, strabismus still present. After this recovery was practically uninterrupted.

In addition to the circumscribed pachymeningitis of the posterior fossa, the unconsciousness, squinting, and hyperæsthesia pointed to a more or less diffuse purulent leptomeningitis, which, as Gradenigo has shown, is not beyond the reach of operative treatment. The fundus oculi was normal.

WILLIAM LAMB.

Abstracts.

DIPHTHERIA.

Ausset.—*A Case of Recurrence of Diphtheria.* "L'Echo Méd. du Nord," September 30, 1900.

This is a report of a case in which a second attack of diphtheria occurred five months after the first. The child was under observation with its first attack from January 14 to January 25, when it left the hospital "clinically well." This attack was severe. The child was brought back to hospital again on July 16 with a slight second attack. External sources of infection could almost certainly be excluded in the second attack; the source of infection was therefore probably in the child's own mouth or naso-pharynx.

Arthur J. Hutchison.

Lichtwitz.—*Diphtheritic or Pseudo-Diphtheritic Bacilli in the Operation Wound after Ablation of the Tonsils.* "Archives Internationales de Laryngologie," etc., November—December, 1900.

The author described in 1896, to the Society of Biology, the results of researches into the pseudo-membrane which covers the operation wound after ablation of the tonsils with the galvano-cautery. In twenty-seven cases taken haphazard from among his operations (twenty children and seven adults), a culture of these exudations revealed in eleven instances the presence of the Löffler bacillus. The condition of these patients in no way differed from that of those in whom the bacteriological examination gave a negative result, and the presence of the Löffler bacillus is not sufficient to establish an unfavourable prognosis.

The author believes that the same results would be arrived at in all cases in the same proportion, but he has not pursued his researches further.

Recently Harmer, Chiari's assistant, has made a series of experi-

ments to ascertain whether the bacillus is to be found at the level of the wound after using the tonsillotome, and to verify Lichtwitz's conclusions.

His results are completely negative as concerns the Loeffler bacillus. In eight cases he thought that he had found it, but the inoculation of animals demonstrated that it was not the true Löffler bacillus, but a pseudo-bacillus, which caused confusion at the outset.

Lichtwitz points out that he found a bacillus, which he is not prepared to say may not have been Harmer's pseudo-bacillus, in 40·7 per cent., and Harmer found it in 25·8 per cent. of cases.

MacLeod Yearsley.

MOUTH, Etc.

Carruthers.—*A Contribution to the Mechanism of Articulate Speech.* "Edin. Med. Journ.," September, October, and November, 1900.

After shortly reviewing the history and bibliography of this subject, the author describes the method he adopted in carrying out his present research. This method he derived from a paper by Canon Oakley Coles. The essential point in the method is that either the tongue or the palate is covered with some substance which will be transferred from the one to the other when they come in contact, viz., on phonation. Thus, the tongue was painted with charcoal in water; or the palate was sprayed with finely-powdered charcoal, the tongue meanwhile being protected by a shield; or, again, the tongue was sprayed with charcoal, the palate being protected. On producing any given "phone," the charcoal was transferred from certain parts of the tongue to certain parts of the palate, or *vice versa*. These contact areas were then carefully mapped out on diagrams. At the same time the position of the lips was similarly recorded.

Having explained his method, the author defines what might be called a physiological letter, or, as he calls it, a "phone." A "phone" is defined as "an element of articulate speech produced in a given position of the speech organs, no alteration of position taking place during its production. In this definition 'alteration of position' is not to be held as including (1) the to and fro vibration of the vocal cords (present in vowels and voiced consonants), or the vibration of the parts in *r* and kindred phones; nor (2) the change from entire closure to partial opening which occurs in all explosives."

The rest of the paper consists of an elaborate investigation of the vowel and consonant phones, with diagrams and charts. For this the reader must, of course, consult the original. *Arthur J. Hutchison.*

Thomson, StClair.—*Removal of the Tonsils by Enucleation.* "Lancet," February 16, 1901.

At a meeting of the Medical Society of London, on February 11, Dr. StClair Thomson exhibited two cases to show the desirability in certain cases of removing the tonsils by enucleation. The first patient was a woman, aged thirty-eight years. In 1894 she was in close attendance on her husband, who was very ill with tonsillitis and a foul discharge from his throat. Soon after she noticed in her tonsils cheesy collections of offensive taste and fætid odour. The local conditions were very similar to those presented by her son, who was the

second case shown at the same time. For this condition she was under continuous treatment for three years. During two years she attended Dr. Thomson's clinic, and was actively treated with gargles, paints, lozenges, caustics, the galvano-cautery, and incisions laying open the tonsillar crypts. At the same time attention was given to her digestion and general health. She remained unrelieved. Accordingly, two years ago the embedded tonsillar stumps were enucleated under chloroform, and she had since been quite free of the chronic fetid follicular tonsillitis which had been such a persistent nuisance. There had been some regeneration of lymphoid tissue between the pillars of the fauces, but there were no crypts in which these cheesy septic concretions could form. The patient found that her voice had not in any way been injured, but rather improved, for singing. The second patient was the son of the former one. He was a boy, aged ten and a half years. When four years old his tonsils were noticed to be enlarged, and they were removed at the Throat Hospital. He was not again troubled with them until after scarlet fever, at the age of six years, when they were again enlarged and were removed with the guillotine at the Throat Hospital by Dr. StClair Thomson. A few months later cheesy collections were noticed in the crypts of the tonsils, and these had since continued almost without intermission. He was under treatment from September to December last. The chief complaint was of his foul breath, which was said to be most marked in the morning, but was perceptible when he was asleep with his mouth closed. The tonsil stumps were seen to be deeply embedded between the faucial pillars. They were riddled with crypts, some of which were half an inch deep. From these crypts dirty white, fetid, cheesy matters were easily extruded. There were no adenoids. It was seen that it was impossible to thread these tonsillar stumps into the ring of the guillotine. In the previous case all attempts to obliterate the crypts failed. The choice of treatment, therefore, seemed to lie between punching out the remains of the tonsil by *morcellement* or enucleation, as in the former case. The mother of the boy was so gratified with the result in her own case that she was anxious for him to have the same treatment. The operation was performed under a general anæsthetic, chiefly by a pair of curved scissors and the fingers.

Jobson Horne.

NOSE, Etc.

Bullara (Palermo).—*Theory of the Causation of Emphysema and Asthma due to Obstructed Nasal Respiration.* "Gazzetta degli Ospedali," 1900, No. 126.

Bullara experimented with dogs. He succeeded in demonstrating post-mortem emphysema in dogs whose nostrils had been previously obstructed. He is of the opinion that nasal reflexes have nothing to do with the cause, but that it is entirely mechanical. The narrowing of the nostrils causes forced inspiration, which produces increased dilatation of the lungs. The resulting increase of inspired air causes increase of the expiratory pressure. Both respiratory phases contribute in diminishing the elasticity of the lung tissue.

The respiratory change, which was caused by the artificial closing of the nose, and which was demonstrated by Marey's pneumograph,

consists in decrease in frequency of respiration, increase of the lung capacity, and change of the respiratory rhythm due to lengthening of the inspiratory period.

Guild.

Danziger, Dr. Fritz (Beuthen O.S.).—*On Adenoid Vegetations.* "Monatschrift für Ohrenheilkunde," January, 1900.

He classifies the cases as follows :

1. In young infants, dating definitely from an acute rhinitis, just as in older children adenoids frequently follow repeated attacks of this disease.

2. In older children developing very slowly, and often unnoticed, accompanied by deformities of the bones of the face and jaws. These deformities are not due, strictly speaking, to the adenoids, but to the fact that the naso-pharynx is contracted from before backwards owing to arrested development of the base of the skull. In this arrest the temporal bone may share. The adenoids in this class are harder, and not connected with inflammation of the adjoining mucosa.

3. During the second decade of life, especially in girls, cases occur in which the symptoms are very much worse at night, the growths swelling in the recumbent posture, as if they were composed of erectile tissue. The author connects this variety with the onset of puberty.

William Lamb.

Douglass, B.—*The Pneumatic Sinuses in the Sphenoidal Wings.* "Laryngoscope," February, 1901.

After an elaborate and most interesting description of these sinuses, the author refers to their practical bearing so far as the work of the rhinologist is concerned. He finds that it is possible to have these cells diseased in either empyema of the ethmoidal or sphenoidal regions. An encysted empyema of the sinus in the sphenoidal wing may cause optic-nerve paralysis, may press upon the carotid artery, or may paralyse the Vidian nerve. The relation of these sinuses to the posterior ethmoidal sinuses makes it possible to open them from the posterior ethmoidal region.

Where it is necessary to curette these sinuses, and also the sphenoidal sinus, the whole operation may be completed by continuing the removal of tissue backwards through the posterior ethmoidal cell into the sinus of the small wing, and thence into the great sphenoidal sinus, or else directly from the posterior ethmoidal cell into the sphenoidal major.

W. Milligan.

Downie, Wa'ker.—*Two Examples in Men of severe and prolonged Attacks of Asthma associated with and apparently dependent upon the presence of Nasal Polypi, Extirpation of which resulted in Complete Immunity from Asthmatic Symptoms.* "Glasgow Med. Journal," October, 1900.

The first patient, a male, aged forty-one, suffered from severe asthmatic attacks, especially shortly after going to bed. For four months previous to seeing the doctor he had been unable to attend to business, the attacks being almost continuous night and day. On examination his sense of smell was absent upon the left side, and was impaired upon the right. The left nasal passage was completely blocked by several large mucous polypi; the right was partially blocked. The polypi were removed by means of snare and forceps, and coincident with an improvement in breathing the asthmatic attacks

became less severe. Finally, the nasal passages were quite cleared of all growth, with the result that the asthmatic attacks entirely disappeared.

The second case was that of a man aged forty-two, who suffered from recurring attacks of sore throat. Asthmatic symptoms appeared, and became so distressing as to necessitate the patient giving up all work.

Upon examination he was found to have complete anosmia and difficulty of breathing through both nostrils. The nasal mucous was hypertrophied, and polypi were found in the nasal passages. The polypi were removed, as also were the anterior halves of both middle turbinals. Immediate relief was experienced, and has been maintained. The author believes that in the majority of cases of bronchial asthma complicated with the presence of nasal polypi, if the asthma is not relieved by the removal of these growths it is because of imperfect removal.

W. Milligan.

Renshaw Knowles.—*Nasal Tuberculosis.* "Journal of Pathology and Bacteriology," February, 1901.

The author regards nasal tuberculosis as by no means so rare as is usually supposed. In an excellent historical summary he cites many cases observed by recognised authorities.

The questions to which he paid particular attention were :

1. Whether it is possible to infect the nasal mucous membrane in a susceptible animal by simply introducing sputum containing the bacilli in a virulent condition, without producing artificially any abrasion of the mucous membrane.

2. Whether any infection so produced in the parts of the nose nearest to the meninges would spread to the meninges.

3. By what paths other than this the system would be invaded.

The material used for the investigation was tubercular sputum, and it was applied locally to the nasal mucosa either by means of a brush or a pipette.

The conclusions arrived at were :

1. Primary tuberculosis of the nasal mucous membrane does occur in man, and not so infrequently as is generally supposed.

2. The simple introduction of the bacilli into the nostril of a susceptible animal without any abrasion may cause tuberculous infection.

3. Infection having occurred, the disease tends to run a slow course.

4. Probably the farther from the entrance of the nostril the seat of the lesion, the more rapid the course of the disease and the earlier the invasion of other organs.

5. The system is, as a rule, invaded by means of the lymphatics, though very occasionally by other routes.

W. Milligan.

Knyk, D. A.—*The Use of the Tuning-fork as a Test for Disease of the Maxillary Antrum.* "Laryngoscope," February, 1901.

The author suggests the use of the tuning-fork, placed over the antrum or over the first and second molar teeth, as an aid to the diagnosis of an antral empyema. If the antra are clear and healthy, the tuning-fork will be heard with equal distinctness and for an equal time over each side and in either location. If one antrum contains fluid, the fork will not be heard so distinctly, perhaps not at all, upon the affected side.

W. Milligan.

Suarez de Mendoza.—*Remarks on the Operation for Frontal Sinusitis.* "Archives Internationales de Laryngologie," etc., November—December, 1900.

The author draws attention to an anomaly of the frontal sinus, which, when the surgeon is ignorant of it, may compromise the success of an operation. This anomaly is the presence of a supplementary sinus, on one or both sides, completely independent of the normal sinus and possessing its own naso-frontal canal. These supplementary frontal sinuses are described as situated behind the normal cavities, and the author gives diagrams which amply explain his description.

MacLeod Yearsley.

LARYNX.

Burggisses, W.—*Abductor Paralysis caused by a Foreign Body.* "Korrespondenz blatt für Schweizer Aerzte," No. 15, 1900.

A soldier swallowed a set of teeth, which stuck near the larynx. Two days after their removal tracheotomy was required owing to threatened asphyxia. The laryngoscope showed double abductor paralysis, which has required the continual use of a tracheotomy-tube.

Guild.

Fischbein, Dr.—*Treatment of Spasm of the Glottis.* "Deutsche Aertze-Zeitung," 1900, Heft 24.

This paper gives a full history of fourteen cases. In all the author found signs of rickets; all the various kinds of infantile food had been used. He thinks it is less common in children fed on the breast. He considers spasm of the glottis to be always caused by auto-intoxication from the intestine. Toxins are found in the products of metabolism, which act on the peripheral ends of the vagus and reflexly cause spasm. When these are removed and appropriate diet given, the spasm disappears and does not recur.

Guild.

Gougenheim and Lombard.—*Indications for Intralaryngeal Operations in Cancer of the Larynx.* "Annales des Maladies de l'Oreille," etc., January, 1901.

These authors quote as the conventional justification for the intralaryngeal method the existence of cases in which certain forms of intrinsic cancer remain for a long time limited to one cord or one ventricular band, and do not tend to progress. This condition obtains in patients of advanced age—just that class in which we feel reluctant to operate by the usual methods. The slow growth has an undoubted relation to the exact nature of the neoplasm, for certain epitheliomata and sarcomata, with a predominance of the fibrous element, tend to grow very slowly. Moreover, there are pedunculated epitheliomata, in which immediate removal may be required to anticipate certain accidents. The authors do not believe, however, that the foregoing justifications are logical in the great majority of cases, nor that the natural channels can ever serve as a universally available avenue for removal of malignant deposits in the larynx. Intralaryngeal removal should be regarded rather as an operation for diagnostic purposes than for cure.

MacLeod Yearsley.

Grünbaum, Otto F. F.—*Note on the Administration of an Anæsthetic to a Patient with Double Abductor Paralysis.* "Lancet," March 2, 1901.

Patient, aged twenty-four, was admitted for operation for hæmatocele. He stated that he thought his heart was weak, as he was breathless on exertion. No disease was found, and the anæsthetic was commenced. The patient took gas well; he passed under the influence of ether, and had nearly lost the cyanosis due to the gas when he ceased breathing. A gag was inserted and his tongue was drawn well forwards, but, no signs of voluntary respiration occurring, artificial respiration was resorted to without delay. Since the pupils continued to dilate while the passage of air into the lungs was accompanied by considerable noise, tracheotomy was suggested, but not performed, because the nature of the puff of air pressed out of the thorax during artificial respiration proved that there was a satisfactory air entry. Five minims of liquor strychninæ were injected. Two minutes later the pupils began to contract, and after six minutes voluntary respiration with loud stridor began. Shortly afterwards the patient regained consciousness, and recovered sufficiently to sit in a chair before the fire. He continued to gasp for breath, but showed that he had returned to sense and sensibility by a refusal to inhale any medication. The stridor gradually decreased, and forty minutes later it had disappeared. The following day the patient was feeling quite well. The character of the dyspnœa which occurred under anæsthesia suggested some laryngeal stenosis. On questioning the patient further about his breathlessness on exertion, it was elicited that any exertion produced noisy stridulous breathing, and, further, that this difficulty had existed as long as he could remember.

On the 14th Dr. J. B. Ball was asked to examine the patient. He reported that both vocal cords lay near the middle line, and on deep inspiration approached each other slightly, still further narrowing the glottic aperture. The condition appeared to be that of complete bilateral abductor paralysis. The appearance was not exactly typical, as there was a slight obliquity in the line of the glottic aperture.

The object of recording the case is to add to the list of pathological conditions which may lead to death during the administration of an anæsthetic, but which (without exceptional examination) may not give any evidence of their existence during life or on the post-mortem table, however minute an investigation be made. *StClair Thomson.*

Jankelevitch, Dr. J. (Bourges).—*Case of Severe Dyspnœa due to Relaxation of the Glosso-Epiglottic Folds.* "Monatschrift für Ohrenheilkunde," January, 1900.

The relaxation allowed the epiglottis to be sucked into the entrance of the larynx during inspiration. A peculiar valve-sound accompanied inspiration, and this was seen to be due to the flapping of the epiglottis against the ventricular bands, which it completely covered.

The relaxed folds were repeatedly cauterized close to the base of the tongue, and the anæmia from which the patient suffered was treated. Great improvement in a month. *William Lamb.*

Moure (Bordeaux).—*One of the Principal Causes of Difficulty in removing the Tube after Tracheotomy in Children.* "Revue Hebdomadaire de Laryngologie," etc., 1900, No. 47.

The author ascribes the difficulty in removing the tube in order that the patient may again breathe *per vias naturales* to the tracheotomy incision having been made too high up—i.e., through the ligamentum thyroideum medium or the cricoid cartilage. There results fixation of the crico-arytenoid joint and stenosis of the larynx from approximation of the vocal cords. There also results—in young children where the cricoid cartilage is in the immediate neighbourhood of the regio subglottica—inflammation of the surrounding mucous membrane due to the presence of the tracheotomy-tube—i.e., laryngitis subglottica.

Moure recommends that the cricoid cartilage should be avoided—the incision made through the first or second tracheal ring. If the incision has been made through the cricoid, and there is difficulty in removal, he advises tracheotomy to be done over again lower down, and to wait till the laryngeal condition subsides; if this does not take place, one must proceed to dilatation of the larynx, intubation, or even laryngo-fissure, for the purpose of removing the infiltrated tissue.

Guild.

Ploc, C.—*Death from Enlarged Thymus.* "Prager Medicinische Wochenschrift," Nos. 50, 51.

This communication consists of a literary review and a report of two cases. One was a patient, sixteen years old, who was operated on for undescended testicle; he died in chloroform narcosis, with signs of failure of the heart's action. Post-mortem showed enlargement of the thymus 5 by 9 centimetres, marked enlargement of the lymphatic tissue at the base of the tongue, and of the tonsils, enlargement of liver and spleen, and hyperplasia of the lymphatics in the intestine. The other case was in a man, forty-eight years old, with tuberculous disease; he died suddenly in bed. Post-mortem showed a lymphosarcoma of the thymus, 5 centimetres long, 1 centimetres broad, which formed a tumour on the ascending part of the arch of the aorta and at the origin of the large vessels.

Guild.

Thomson, StClair.—*Cystic Hygroma of Neck.* "Lancet," March 2, 1901.

At a meeting of the Clinical Society of London, on February 22, Dr. StClair Thomson showed a woman, aged twenty-nine years, with a large irregular, soft swelling in the region of the upper half of the right sterno-mastoid. It was elastic and fluctuating, and was neither adherent nor inflamed. She was positive that the swelling commenced just before her marriage (at the age of twenty-seven years), as a small lump on the right side of the neck. This increased during pregnancy, and became larger after her first child was born, in September, 1900. Mr. Bland-Sutton had stated that congenital serous cysts of the neck were "always noticed at or immediately after birth." Possibly, as they originated below the deep cervical fascia, the one in this case escaped notice until it had made its way through this membrane and had become superficial.

Jobson Horne.

Tsakyroglous, Dr. (Smyrna).—*A Case of Leech in the Larynx.* "Monatsschrift für Ohrenheilkunde," January, 1900.

Spitting of blood and dyspnœa were complained of. The leech (*Hirudo sanguisuga*) was seen to have fastened on the base of the epiglottis, and lay on the verricular bands. It was removed with forceps. The patient had drunk from a suspicious spring in the neighbourhood of Esme a week previously, and thought he had swallowed a leech. This species is frequently found in the throats of horses and cattle.

William Lamb.

Zuckerkandl, Professor E.—*Notes on the Larynx of a Singer.* "Monatsschrift für Ohrenheilkunde," January, 1900.

The glottis was long and narrow, the cricoid cartilage very slender; thus, adduction would be easy. There was a strongly-developed superficial layer of the crico-thyro-arytenoideus, connected with the arytenoideus proper. The fibres of the thyro-arytenoideus which go to the epiglottis and to the ary-epiglottic folds were so strongly developed that when contracted the walls of the upper segment of the larynx must have been thrown into a condition of tension favourable to resonance. The muscles of the cords were also large, and, in fact, there was generally increased muscular development to meet increased work.

William Lamb.

E A R.

Bezold, F. (Munich).—*Re-examination of the Hearing of Deaf-mutes originally tested in 1893.* "Arch. of Otol.," vol. xxix., Nos. 2 and 3.

The re-examination was carried out by means of more powerful instruments devised by Professor Edelmann. Only twenty-eight of the scholars previously examined now remained, but Professor Bezold found his former observations very closely confirmed, the "islands" of hearing being in some instances slightly more marked than when the older instruments were used, and some formerly taken to be quite deaf were found to have limited areas of audition. Professor Bezold expresses disappointment with the result of hearing exercises by means of tones, but in his Group VI. (inability to learn to speak, but with a very wide range of audition for sounds) he considers cultivation of the ear by speech very promising. The paper is illustrated by graphic charts.

Dundas Grant.

Bezold.—*Three Cases of Intracranial Complications of Acute Otitis Media.* "Munch. Med. Wochen.," No. 22, 1900.

In a case of acute purulent otitis media during the fourth week, sinus phlebitis developed, followed by metastatic deposits in the lung. The jugular vein was tied and the sinus cleared out. Recovery followed.

In another case, as the result of acute non-perforative otitis media, an abscess developed in the posterior part of the temporo-sphenoidal lobe. The abscess was opened and drained. Recovery took place.

W. Milligan.

Biche, Dr. Carl.—*Report of the Ear and Throat Department of Military Hospital No. I., Vienna, for the Year 1898-99.* "Monatschrift für Ohrenheilkunde," February, 1900.

Otitis externa was treated by packing a strip of gauze soaked in alcohol into the meatus. Ichthylol and menthol vasogen were also used; the latter gave great relief to pain.

Acute otitis media was treated by the dry method. If after three or four weeks' careful treatment the discharge did not diminish, the mastoid was opened. The bone was generally softened and the antrum full of pus.

Chronic otitis was also treated by the dry method wherever possible. Where washing out was necessary alcoholic liquids were used.

William Lamb.

Biggs, G. P.—*Cerebellar Abscess; Rupture into the Fourth Ventricle.* "Medical Record," February 16, 1901.

The patient, a male, aged forty-one, had had bilateral suppurative otitis media since twelve years of age. Eleven days before admission to hospital he had severe pain in the back of the head, with vomiting and partial paralysis of the right side of the face. The tongue deviated to the left. The left pupil was larger than the right, but both reacted to light. The neck was rigid and tender. There was also nystagmus and conjunctivitis of the right eye. Death occurred three weeks after the onset of acute symptoms. At the autopsy basal meningitis was found, extending partially also over the right cerebellar lobe. The seventh and eighth cranial nerves were softened and bathed in a purulent exudate. The lateral and also the third ventricles were distended with sero-purulent fluid. In the fourth ventricle some offensive pus was found, and a mass of necrotic tissue, which had originated in an abscess of the right cerebellar lobe close to the pons, and which communicated with the fourth ventricle by means of a small perforation in its anterior part. This opening, smooth and rounded, suggested a process of some considerable duration.

W. Milligan.

Ricardo Botey.—*The Surgical Treatment of Sclerosing Otitis.* "Annales des Maladies de l'Oreille, etc.," August, 1900.

This author is convinced that sclerosis is a tropho-neurosis. The lesions are disseminated mostly in a capricious manner, and are rarely confined to the middle-ear. He considers that sclerosis is rather a *panotitis*, and, holding these views, he is not very much in favour of surgical treatment in these cases. Nevertheless, he has tried several surgical procedures, namely:

1. Perforation of the membrane.
2. Mobilization of the stapes.
3. Removal of the malleus, incus and membrane.
4. Deep mobilization of the stapes, after section of all adhesions between its crura and the fossula ovalis.
5. Ablation of the stapes.

Before attempting any of these operations, it is necessary to ascertain the integrity of the internal ear.

The author goes into the detail of these operations, and has arrived at the following conclusions:

1. In sclerosis, to justify the trial of any surgical treatment, bone conduction must be perfect, with Rinné negative, and Weber referred

to the worst side. Perforation of the membrane should cause improvement.

2. Permanent perforation of the membrane can be performed when the meatus is narrow, but in spite of the fact that a slight improvement is sometimes obtained for about two years, and supposing that adhesions and diaphragms are destroyed, the patient will revert to the same deafness that he suffered from before the operation.

3. Mobilization of the stapes is completely useless, as any benefit is always transitory. This operation is only justified in cases following suppuration. The same may be said of the improvement obtained after the breaking down of adhesions of the stapes.

4. Extraction of the malleus, incus, and removal of the membrane can be perfectly effected *viâ* the meatus, when it is large. The results obtained in sclerosis are mediocre or insignificant. The remote effects are nearly negative, and they may aggravate the deafness.

5. Deep mobilization of the stapes can be done without performing Stacke's operation. The results are always very slight, and rarely definite.

6. Extraction of the stapes, despite the great hopes entertained for it, is a bad operation. Results are almost nil.

7. In the surgical treatment of sclerosis, otology has made a false move, because the disease is probably a tropho-neurosis, and the lesions are mostly panotitic. Therefore any operation which aims at modifying the transmission of sounds to the labyrinth cannot affect the latter, which is almost certainly implicated, if not diseased alone.

8. Experiments on animals, which the author has attempted, are wholly inapplicable to man, as in the former the labyrinth is intact, and in the latter it is always more or less affected, although we, with our imperfect methods of investigation, cannot always detect it.

9. Similar experiments undertaken by the author on animals in 1890, and repeated in 1896, proved the inefficacy of surgical treatment in sclerosis, since by irritating the surroundings of the fenestra ovalis, the foot-plate of the stapes became completely ossified, welded to the window, and limited by thickening and ossification of the nitch, consecutive to the spread of an interstitial inflammation of the mucous membrane.

10. Since it is fairly certain that sclerosing otitis is a tropho-neurosis, with the formation of bony substance, principally in the labyrinthine capsule, about the fenestra ovalis, in the cochlear canal, and in the spirals of the cochlea, the terminations of the auditory nerve being more or less implicated, surgical treatment is useless in nearly every case.

Macleod Yearsley.

Cheatle, Geo. Lenthal.—*New Plastic Operation on the Prominent Auricle.* "Medical Press," February 13, 1901.

The patient, a boy, aged nine, complained of his prominent ears attracting a great deal of unpleasant attention; therefore he and his parents wished that something might be done, if possible, to remedy this great deformity. Mr. Cheatle for this reason performed the following operation: A crescentic-shaped portion of the auricle, measuring three-quarters of an inch in its widest part, was excised by means of two crescentic incisions, which transfixed all the tissues. The posterior incision ran along the helix just inside its curved rim, and the anterior incision was made into the auricle a quarter of an inch behind the external auditory meatus. As these two incisions met at

their extremities, on their completion the tissues included between them were necessarily removed. This left a crescentic hole in the auricle, the rim of the helix being intact, which was stitched to the anterior edge of the hole thus produced. It was requisite to excise a portion of the helix to accommodate it to this edge. It was also thought best to remove the lower part of the helix, as by so doing a prettier edge was left for the re-formed auricle. The edges of the helix and the anterior and posterior edges of the auricle were brought together by means of silkworm-gut stitches, the wound being then covered with collodion and gauze. Mr. Cheatle, on thinking over the question, has come to the conclusion that the deformity in this and similar cases is occasioned mainly by an increase in the measurement of the auricle between the external auditory meatus and the top of the helix, arising from a flattening of the antihelix; he therefore considers the measure to adopt is to excise this portion of the antihelix, practically the antihelix itself; to do this and leave a presentable ear it is necessary to preserve the rim of the helix which forms the curved posterior edge of the auricle. He proposes this procedure because the elasticity of the cartilage prevents the reduction of the prominence by any other form of plastic operation. One of the most important points to be remembered is that the curve of the anterior incision above described should be carefully fashioned to fit the curve of the helix, which is stitched to it at the end of the operation, this being specially important in order to secure afterwards a natural shape to the ear. It is also important to leave enough of the remaining auricle to allow its tip to be above its attachment to the side of the head.

During the operation the skin retracted away from the cartilage and left it prominent. This cartilage was removed with a pair of scissors to enable the edges of skin to fall together. The stitches were inserted by transfixing all tissues.

Two weeks after the operation perfect union had taken place, the stitches had all been removed, and the ear had assumed quite a natural appearance.

Jobson Horne.

Cobb, C. M. (Boston, Mass.).—*Nasal Empyema as an Etiological Factor in the Establishment and Continuation of Post-nasal Catarrh and Catarrhal Inflammation of the Middle Ear, with an Especial Consideration of the Enlargement of the Posterior End of the Middle Turbinate as a Predisposing Cause.* "Arch. of Otol." vol. xxix., Nos. 2 and 3.

The title gives the gist of the author's contention. He considers that nasopharyngeal catarrh is only persistent when the posterior cells are involved, and that this involvement is generally preceded by an enlargement of the middle turbinate body. He holds that the sinuses have a tendency to spontaneous recovery from inflammatory conditions if the superjacent swelling of the middle turbinal and the granulations round the orifices are removed. His cases give support to these views. These observations show the importance to the aurist of a knowledge of rhinology.

Dundas Grant.

Dunn, J. (Richmond, Va.).—*A Case of Bezold's Mastoiditis secondary to Facial Erysipelas; Operation; Recurrence of the Erysipelas within Twenty-four Hours; Cure.* "Arch. of Otol.," vol. xxix., Nos. 2 and 3.

The recurrent attack subsided under the prompt and thorough use of carbolic acid and alcohol. The whole of the reddened area, including the auricle and the external auditory canal, which was nearly impervious from the swelling down to the drum membrane, was painted over three times with pure carbolic acid. The whole surface was then left covered with gauze saturated in pure alcohol, the auditory canal being filled with alcohol every two hours.

Dundas Grant.

Gruber, Professor.—*Defect of the Lower Wall of the Bony External Meatus, the Jugular Bulb filling the Gap.* "Monatschrift für Ohrenheilkunde," January, 1900.

The gap corresponded with the posterior lower quadrant of the membrana tympani, and was about 6·7 millimetres long and 3·4 millimetres broad. It was filled by a dark, somewhat livid swelling, which bulged upwards, and showed light reflection at its point of greatest convexity. The swelling felt elastic when touched with the probe. Pressure upon the jugular vein in the neck caused it to increase, as shown by the change in the light reflection. The annulus cartilagineus was complete, the dehiscence involving only the lower wall of the meatus.

William Lamb.

Jürgens, Dr. E. (Warsaw).—*Suppurative Diseases of the Ear: their Causes and Clinical Features.* "Monatschrift für Ohrenheilkunde," February, 1900.

Fruitless mastoid operations may be avoided in many cases by bacteriological examination of the middle ear. All cases of otorrhœa and dry perforation are so examined in the author's wards. The presence of streptococci in acute cases generally means that the mastoid will have to be opened.

Details of fourteen cases are given. They may be arranged in three groups:

1. Those in which *Streptococcus pyogenes longus* alone was present. They were characterized by continued or remittent fever, with distinct septicæmic symptoms.

2. Those in which *Streptococcus longus* and *brevis* were present together with staphylococci. The course was slow and dragging, with no stormy periods. Temperature curve low.

3. Those in which *Streptococcus brevis* (Behring) was present alone. Clinically there were stormy periods, alternating with quiet times; no distinctive symptoms. As regards the conditions found in the three classes of cases, the more dangerous the invader (*Streptococcus longus*) the less are the local changes, and the more do the general symptoms predominate. *Streptococcus brevis* often gives rise to extensive local destructive changes, with slight general symptoms. Staphylococci seem to have rather a weakening effect on the infection of streptococci, for the mixed cases are much less virulent than those in which streptococci alone are present. The latter, although they may apparently recover without operation, always break out again, and "bring the patient either to his coffin or to the operating-table." In one case a perforated membrane healed and recovery was apparently

complete, yet the patient died in less than a month from purulent meningitis. Thus the middle ear may heal and leave the mastoid process still diseased.

In two cases *Streptococcus brevis* was present in completely sclerosed mastoid processes, growing all through the bone. The actual numbers of the bacteria found in the mastoid were not very large. The author took splinters of bone from the mastoid during operation, and these yielded almost pure cultures of the organisms. Pus taken before operation most frequently yields pure cultures; pus taken after operation is apt to contain mixed organisms.

The secretion in acute cases often contains nothing but epithelium and blood corpuscles, and in such the danger is slight. Pure staphylococcus infection of the mastoid the author has not yet seen.

In older cultures of *Streptococcus brevis* the chains often drop to pieces, so that diplococci seem to be present. *William Lamb.*

Lewin, Leon.—*Investigations into the Use of Soluble Remedies introduced by the External Auditory Meatus.* "Archiv für Ohrenheilkunde," 50 Bd.

In anatomical preparations fluids were poured and syringed into the auditory meatus, not only in normal temporal bones after perforation of the tympanic membrane, but also where there had been chronic otorrhœa. The fluid, when poured into the meatus with the head in a suitable position, and if the perforation was not too small, passed easily into the tympanic cavity and the middle-ear spaces. This also occurred in otorrhœa if the secretion was small in quantity or had been previously removed. The supposition that the middle-ear spaces cannot be reached in conservative treatment is therefore false. The same result occurred on syringing, except where there was excessive discharge.

Only when there is a large perforation and a tube is passed into the tympanic cavity can this and the neighbouring spaces be cleansed in cases with profuse suppuration. If one syringes not only from the external meatus, but also from the tube, the cleansing takes place easier and under more favourable conditions.

This superior method of syringing *per tubam* which was derived from the researches of Lewin, may suffice for cases of middle-ear suppuration with central perforation, but certainly not for the by far most dangerous suppurations with peripheral perforation high up, where syringing with the tympanic cannula is required. *Guild.*

McCaw, J. F.—*Extradural Abscess following Acute Suppurative Tympano-Mastoiditis, with Report of Two Cases.* "Laryngoscope," February, 1901.

In the first case the patient, a male, aged fourteen years, developed an attack of acute middle-ear suppuration following influenza. Under general anæsthesia the membrane was perforated, followed by a free discharge of pus. Improvement followed at first, but within a few days the temperature began to rise, accompanied at the same time by mastoid tenderness, but by no swelling or redness. The mastoid cells were opened and cleansed. On the eighth day following this he complained of pain and stiffness in the muscles of the neck, accompanied by an evening rise of temperature and by restlessness and delirium. There was no optic neuritis. Under chloroform the interior of the cranium was explored, the surface of the cerebellum being first

examined, with negative results. A small epidural collection of pus was found over the tegmen antri. The patient gradually recovered.

In the second case the patient was a male, aged nineteen, who suffered from acute suppurative otitis media following an attack of influenza. Profuse discharge existed, and there was also slight mastoid tenderness. The mastoid cells were opened, and were found in an acute carious condition. The inner mastoid cortex had entirely disappeared, exposing the lateral sinus, which was bathed in pus and necrotic tissue. The patient made a good recovery. *W. Milligan.*

Mink.—*On the Form of the Catheter.* "Annal. des Mal. de l'Or.," December, 1900.

The author dwells on the inconvenience of the ordinary catheter where septal deformities are present, and of the necessity of suiting the curve of such catheters to particular cases by repeated trial. He proves on grounds both anatomical and mathematical that all this can be avoided by slightly curving the shaft of the instrument, which terminates in a sharply-bent terminal portion, not longer than $\frac{3}{4}$ of a centimetre, which enters the Eustachian tube. The curve of the shaft which the author finds useful in all cases over twelve years of age is part of a circle of $12\frac{1}{2}$ centimetre radius with a chord of 7 centimetres. The tip of the instrument is brought into position by leverage on the septum or its excrescence, and the curved form is introduced on the grounds that the end of a curved lever can be made to traverse a greater arc than a straight one by successive displacement of the fulcrum. As a practical consequence, the tip of the catheter can be carried by leverage into the Eustachian orifice, even when a spur is present near the posterior end of the septum. *Ernest Waggett.*

Murray, W. R. (Minneapolis).—*Facial Paralysis as a Complication of Acute Otitis Media.* "Arch. of Otol.," vol. xxix., No. 1.

Out of 258 cases two were complicated with facial paralysis. The first resulted from a kick, which produced rupture of the tympanic membrane. The paralysis disappeared in six weeks, tonic treatment with antiseptics to the ear and faradism to the muscles having been practised.

In the second case, the facial paralysis supervened in a case of acute otitis soon after the occurrence of earache and before the rupture of the membrane. Treatment by means of antiseptics, tonics, and faradism was successful.

The author thinks the lesion was probably situated on the inner wall of the tympanum, above the fenestra ovalis.

(No mention is made of the sense of taste.—D. G.)

Dundas Grant.

Murphy, J. W.—*Acute Mastoiditis following Infectious Diseases.* "Columbus Medical Journal," vol. xxiv., No. 7.

The author strongly approves of paracentesis as a means of draining the tympanic cavity. He disapproves of poultices, and considers that antiseptic irrigations have little effect in controlling the progress of the disease.

If local treatment should not check the disease within thirty-six hours, he recommends opening the mastoid cells by performing Schwartz's operation.

W. Milligan.

Stenzer.—*Function of the Semicircular Canals.* "Archiv. für Ohrenheilkunde," Bd. 1, Heft 1 and 2.

Report of eight cases of operation with injury of the horizontal semicircular canal. There resulted severe giddiness, nystagmus, and subjective auditory sensations, which disappeared some months later. These did not occur in children. The uncontrollable movements which occur in experiments on animals were absent. Vomiting was of little account. Giddiness due to the semicircular canals is distinctly different from that due to brain affections. *Guild.*

Taptas (Constantinople).—*A Case of Perisinus Abscess following Acute Purulent Otitis.* "Ann. des Mal. de l'O.," etc., xxvii., February 2, 1901.

The disease occurred in a girl, aged nineteen years, in whom an acute otitis had been cured two months and a half. A mastoid operation was performed, and a very little pus was found under the skin close to the posterior border of the bone. The antrum was healthy. At the point where the pus was found the dura mater was bare, the orifice was enlarged, and pus followed. The dura mater and the sinus were covered with large granulations, which were curetted and dressed with iodoform gauze. The patient recovered, with normal hearing in a month. The only symptoms of note were pain confined to the mastoid and headache, there being no manifestations pointing to intracranial disease. *MacLeod Yearsley.*

Waring, H. J.—*Cholesteatoma of the Temporal Bone and its Treatment.* "Edin. Med. Journ.," February, 1901.

Two cases of cholesteatoma of the temporal bone—the one primary, the other secondary—are here reported.

CASE 1.—A healthy-looking woman, aged twenty-two, who had been deaf on the left side for some time, had been treated for a painful, fluctuating swelling behind the left ear by simple incision. A quantity of pus was evacuated. Three weeks later the patient came under the observation of the author. A fistula behind the left auricle leading down to cario-necrotic bone was found, but the membrana tympani was intact. A radical operation was performed. The bone was to a large extent occupied by a cavity two inches by one inch and a quarter, filled with tissue, which, on histological examination, proved to be typical cholesteatoma. This cavity extended forward into the tympanum, but did not open either the cerebral or the cerebellar fossa. The whole cavity, including the tympanum, was thoroughly scraped, then treated for several weeks by antiseptic irrigation and packing. The walls of the cavity became lined with red granulations, and a purulent discharge began to appear in the external meatus. When the cavity became stationary in size and had been sterile for some time, a second operation was done to close the post-auricular wound.

The wound was opened up, the cavity carefully dried, and the whole space filled with long, thin strips of bone and cartilage, taken from the femora and tibiae of a young kitten, killed for the purpose during the course of the operation. The external wound was then closed with sutures and the meatus plugged with gauze. Except for a foul-smelling, non-septic discharge from the meatus from the fifth to the ninth days, nothing of importance occurred. The patient left hospital a fortnight later, with the post-auricular wound quite healed

and with practically no discharge from the meatus. The hearing was slightly improved on the affected side. The patient remained well up to the time when she was last seen, viz., two years after date of operation.

CASE 2.—A girl, ten years old, had persistent purulent discharge from the right meatus for two years. An operation, the nature of which could not be exactly made out, had been performed at another hospital. There was purulent discharge from the right meatus, the deeper part of the meatus was full of polypoid growth, and there was a depressed scar over the right mastoid. The patient was anæsthetized, and the ear carefully examined. A vascular tumour was found filling the tympanum and extending backwards towards the antrum. This was removed with a Volkmann's spoon, and the walls, which were carious, were curetted. The cavity was irrigated and packed twice a day for several weeks. The cavity diminished in size and discharge almost ceased. The patient was discharged. The tumour consisted of vascular tissue covered with a large amount of stratified squamous epithelium. A few weeks later the patient returned in much the same condition as when first seen. The second operation was now performed. The antrum and tympanic cavity were opened from behind, cleared of tumour, and the walls scraped. The post-auricular wound was left open. The cavity filled up three times with cholesteatomatous tissue before it finally was rendered aseptic. It was then freely laid open and filled with bone and cartilage, as in Case 1. The effects were not satisfactory; a purulent discharge occurred and brought away the bone and cartilage with it. Later the operation described by Mr. Ballance was performed with moderately good results.

The author considers the condition of the patient is better when the cavity is filled up with new bone than when it is left as a cavity lined with epithelium. He attributes the failure of the bone grafting in Case 2 to the fact that the cavity was probably never rendered thoroughly aseptic.

Arthur J. Hutchison.

ŒSOPHAGUS.

Downie, Walker.—*Four Cases illustrative of the Local Lesions resulting from the Swallowing of Liquid Ammonia.* "Glasgow Medical Journal," January, 1901.

The local effects of drinking liquid ammonia depend largely upon the strength of the solution. Acute inflammation usually develops immediately in those parts with which the fluid has come in contact. Within about six hours a fibrinous exudation appears, usually over the uvula, free border of palate, lip of the epiglottis, and over the arytenoid and aryepiglottic folds. Healing of these abraded surfaces takes place satisfactorily, but in the gullet cicatricial stenosis is the rule, and usually sets in in from one to three months after swallowing the ammonia. The author has usually found two strictures, one close to the mouth of the gullet and the second at a variable but usually much lower level.

Treatment by gradual dilatation, if adopted sufficiently early, is followed by satisfactory results. For the purposes of dilatation, the author uses a bulbous cylindrical gum-elastic bougie, or flattened bougie (oval in section), as in order to give permanent relief complete dilatation is necessary.

W. Milligan.

F. Edmunds.—*A Successful Case of Gastrotomy for Impacted Foreign Body in the Œsophagus.* "The Lancet," February 23, 1901.

When a foreign body is impacted in the lower portion of the Œsophagus, and cannot be displaced by the use of bougies, three courses are open to the surgeon. He may, firstly, open the Œsophagus in the neck, and endeavour to remove the foreign body by forceps; this is the oldest method, and is not unlikely to prove successful unless the body is situated very low down. The second method is to perform an intra-mediastinal Œsophagotomy; this is an operation extremely difficult and dangerous in itself, and it has, so far as we are aware, never been successful. E. Forgue* has described a case in which he attempted to perform this operation for an impacted coin, but he was obliged to desist on account of temporary cessation of breathing, and a fortnight later he was able to remove the coin through the mouth by means of a coin-catcher. In the third method, which is especially suitable when the foreign body is impacted near the cardia, a gastrotomy gives the surgeon access to the lower part of the Œsophagus, whence the impacted body is removed by means of a finger or forceps. In a case recorded by Mr. D. Wallace† of Edinburgh an Œsophagotomy was first performed for the removal of an impacted tooth-plate, but the forceps introduced could not dislodge it, so a gastrotomy was tried, and the plate was successfully removed by means of a pair of forceps. The diagnosis in such cases as these can be much facilitated by skiagrams.

In the present case a denture became fixed in the lower third of the Œsophagus. An oblique incision $2\frac{1}{2}$ inches long was made about 1 inch below the costal border, to the left of the middle line. The stomach was found without difficulty, and was held up into the worn by two silkworm-gut sutures, passed through the serous and muscular coats only. Having packed it well round with sponges to prevent any fouling of the peritoneum, Mr. Edmunds made an incision through the wall of the stomach, transversely to its long axis, sufficiently large to admit the finger, but no trace of the plate could be felt in the stomach by finger or probe. The opening in the stomach wall was enlarged to about 4 inches, sufficient to admit the hand, which was inserted, and on passing the index-finger into the Œsophagus one of the hooks of the plate could be felt about 2 inches above the cardiac orifice. The plate was firmly fixed by means of two of the hooks to the Œsophageal wall, but manipulation with long curved forceps passed along the finger released it, and it was removed through the stomach. The opening in the stomach was closed by a long continuous suture of fine silk for the mucous membrane alone, and the serous and muscular coats were brought into apposition by means of between thirty and forty Lembert's sutures, also of fine silk. The parietal incision was closed by means of silkworm-gut sutures through the whole thickness of the wall.

No food was given by the mouth for three days. The wound was first dressed on the sixth day, and healed of first intention. The patient made an uninterrupted recovery.

The above case seems to be worthy of record, as, according to Mr. Treves's recent edition of "Operative Surgery," in the only two similar cases published, the operation was performed by American

* XII^e Congrès de Chirurgie, Paris, 1898, p. 220.

† The *Lancet*, March 24, 1894, p. 734.

surgeons (Dr. Bull of New York and Dr. Richardson of Harvard) in 1886 and 1887. The remarkable feature of the present case is that subsequently to the operation no pain whatsoever was complained of, either gastric or peritoneal, and the patient was entirely free from vomiting or any dyspeptic symptom whatever, and seven weeks after the operation he was following his occupation and felt in perfect health.

(*Note by Abstractor.*—This appears to be the same case which was already fully reported in the *British Medical Journal*, 1900, ii., November 17, p. 1438.)
StClair Thomson.

Isaacs, A. E.—*A Whistle in the Esophagus.* "Medical Record," March 16, 1901.

The patient, a boy, was brought to the writer two days after having swallowed a toy whistle. Nothing could be felt by means of the finger, and œsophageal forceps of various kinds were passed without locating anything. By means of the X-rays the position of the whistle was ascertained, and was eventually successfully removed by means of the "hinged-bucket" œsophageal probang.

W. Milligan.

Lambret.—*Cicatricial Stricture of the Esophagus; Gastrotomy.* "L'Echo Méd. du Nord," October 14, 1900.

At a meeting of the Société Centrale de Méd. du Départ. du Nord Lambret showed a young man, eighteen years old, who had swallowed some caustic potash in mistake for eau de vie a year ago. When brought to hospital at that period cicatricial contraction was well marked; it was impossible to catheterize the œsophagus. The patient left the hospital, but returned sometime afterwards in a very weak condition, and weighing barely 27 kilogrammes. Gastrotomy was performed two months ago with satisfactory results; increase of weight to 34 kilogrammes.

Arthur J. Hutchison.

PHARYNX.

Huber, Francis.—*The Diagnosis and Treatment of Adenoids by the General Practitioner.* "Archiv. of Pediatrics," March, 1901.

Among the many symptoms indicative of the presence of naso-pharyngeal adenoids in children, a prominent vein running across the base or root of the nose will often be found emphasizing the existence of an impeded venous circulation in the pharyngeal vault. In older children nose-bleeding is common, and usually ceases when the patency of the naso-pharynx has been restored.

Diagnosis may be made from (1) the symptoms; (2) by means of the post-nasal mirror; (3) by digital exploration of the naso-pharynx. Reliance may be placed upon the existence of two symptoms (in cases where digital exploration of the naso-pharynx may not be desirable at the time), viz., the presence of two small lymph nodes, painless and freely movable, at the angle of the lower jaw, one upon either side, and the presence of numerous small lymphoid hypertrophies upon the mucous membrane of the post-pharyngeal wall. The author prefers Delstanche's curette for the removal of all growths, or in infants Hooper's forceps. For a week or so prior to operation he advocates

irrigation of the nasal passages with a warm saline solution. The after-treatment he uses consists in instilling warm salt-water into the nares every few hours. The child is put upon liquid diet, and is confined to the house for a few days. The nasal irrigation is kept up for weeks.

The writer operates without narcosis, and believes that there is less shock where no anæsthetic is given. W. Milligan.

Morestin.—*Foreign Body in Pharynx and Presternal Dermoid Cyst.*
"La Presse Méd.," October 20, 1900.

At a meeting of the Société Anatomique Morestin showed (1) a piece of bone (rabbit) removed from the retro-laryngeal mucous membrane of the pharynx; (2) a dermoid cyst about the size of a hen's egg, removed from the supra- and pre-sternal region. From its position, softness, and the fact that it moved more or less with the movements of the larynx, it was at first taken for a goitre. It first appeared at the age of ten years. It contained hairs, etc. Arthur J. Hutchison.

THYROID, Etc.

Cristiani.—*Development of Thyroid Grafts.* "Revue Méd. de la Suisse Romande," November, 1900.

A graft of thyroid gland at first tends to undergo a certain amount of degeneration, but soon regains its normal structure and forms a true thyroid gland, capable of carrying on proper thyroid functions and having no tendency to atrophy. In many of the author's experiments the graft was considerably larger after six months to two years than at the time of its transplantation, and this increase in size was due to increase in the thyroid epithelium proper. This increase takes place by means of epithelial buds starting from the thyroid alveoli. It is thus analogous to the growth of the thyroid in embryo, or to the growth of the thyroid during the formation of a goitre.

Arthur J. Hutchison.

THERAPEUTICS.

E. A. Peters.—*Cases in which Pain was relieved by Suprarenal Extract.*
"The Lancet," March 2, 1901.

The author urges that even when recourse must be had to morphia, local application of suprarenal extract will in many cases postpone the necessity for the narcotic drug.

When liquid suprarenal extract is applied to a part of the respiratory, intestinal, or genito-urinary, or other mucous membrane, a pallor spreads over the inflamed surface, and usually obtains for two hours; even the pain of suppurative ophthalmia is eased somewhat. The pain of subacute inflammations, such as those of cancer and tuberculosis, is quickly and safely eased for two or more hours. Application of the extract once or twice in the twenty-four hours has reduced the usual pain to a minimum, and apparently the inflammatory condition subsides somewhat. The ultimate effect of suprarenal extract on these forms of inflammation cannot be stated. Of the various preparations

of suprarenal extract which are upon the market, the liquid preparations have proved unsatisfactory. Burroughs and Wellcome have endeavoured to manufacture a reliable "soloid," but, except in the case of the earlier specimens, these attempts have failed. But an efficient preparation can at any time be prepared from the tabloids of the dried gland produced by that firm. Two tabloids, representing 10 grains of fresh gland, are powdered and placed in a test-tube with 100 minims of boiled water. The test-tube is stood in boiling water for from ten to fifteen minutes. The contents are then filtered; the opalescent filtrate presents a 10 per cent. watery extract, has a specific gravity of 1032, and contains about 2 per cent. of sodium chloride. If required, solid cocaine hydrochlorate can be conveniently added to the cooled filtrate. This extract varies widely in keeping properties, and though after the addition of a little camphor it may keep some days, it is better to prepare fresh sterile solutions. Some of the 10 per cent. watery extract has been injected subcutaneously into rabbits with no marked ill-effect, until a proportion was reached when the 10 per cent. extract of 1 gramme of suprarenal gland was injected into 1000 grammes of rabbit; at this point a diminution of weight and fall of rectal temperature were noted. When the amount of extract was doubled, a great fall of temperature occurred, together with a tendency to sepsis, local gangrene (compare ergot gangrene of our forefathers), and death. If the same proportion holds good in man, it would be necessary to inject 22 ounces into a 10-stone man before ill effects were produced. The fresh glandular extract was not used in any of the above-described cases.

The following cases show that the application of a suitable suprarenal extract may be of great benefit in allaying the pain of cancer and other forms of chronic inflammation without any apparent deleterious effect:

CASE 1. *Recurrent Scirrhus of Mamma*.—A 10 per cent. solution was painted on, and secured freedom from pain every night for three months.

CASE 2. *Stricture of Œsophagus*.—Relief by sipping a teaspoonful of a 10 per cent. solution of extract.

CASE 3. *Tuberculosis of Larynx*.

CASE 4. *Periodontitis*.

StClair Thomson.

REVIEWS.

Descriptive Catalogue of the Museum of the Sixth International Otological Congress, held in London, August 8 to 12, 1899. Compiled and edited by W. JOHNSON HORNE and ARTHUR H. CHEATLE. Revised edition. J. and A. Churchill, London, 1900. Price 10s. net.

The phenomenal success of this museum was constantly remarked by all members of the Congress. Those who came from abroad particularly deplored that so very few days were allowed for its inspection, and that adequate study of its contents was an absolute impossibility. The extent of the work carried out astounded all who were present. Those who procure the Descriptive Catalogue and peruse it at their

leisure will realize how well grounded was the admiration excited by the collection, as well as the regret that it was so soon again to be dispersed. The possession of the Catalogue will to some extent make good the loss to those who had to content themselves with the short visit that the time permitted. By the aid of the revised edition now in our hands residents or visitors will find a wealth of material for the study of otology and rhinology in the museums of London. Visitors to the aural clinics on the Continent will also derive valuable indications where to seek for preparations and instruments of much interest and importance. The book comprises also that long-felt want, a revised reprint of the Toynbee Collection lying in the Museum of the Royal College of Surgeons, and lent by that body to the Museum of the Congress. The Catalogue is no mere list; the descriptions contain clinical as well as pathological instruction. Those who are not possessors of this work will no doubt take the opportunity of becoming so, and of thus acquiring a unique guide-book to the objective modern pathology of the organs of hearing. The work is one of which the compilers may be justly proud.

D. G.

Diseases of the Ear and Naso-Pharynx. By T. MARK HOVELL, F.R.C.S.E.
Second edition. J. and A. Churchill, London, 1901. Price 21s.

The demand for a second edition of this exhaustive systematic work within a comparatively few years is the most gratifying testimony for which the author could wish—that it fulfils the requirements of that exacting class of practitioners which demands such information only obtainable in an extensive work. On the appearance of the first edition the excellent quality of the book was set forth, and it is not too much to say that this has been maintained in the present one with all the amplification and revision which it has undergone for the purpose of keeping it abreast of the progress of otology.

After a general description of the structure of the ear, the anatomy of the conducting apparatus is fully described. As before, both the physical and functional examination of the ear are given in minute detail. The use of the voice for testing the hearing-power is recommended, and attention is drawn to the difference in the audibility of various vocal sounds. It would have been well if the author had seen his way to constructing a set of English test words in amplification of those devised by Blake. Mr. Hovell's love of detail is illustrated by the modifications of various instruments which are in general of considerable value. He speaks highly of the short Eustachian catheter, for the introduction of which he gives the credit to Mr. Hodson, of Brighton. The chapters on abnormalities of the external ear are extremely complete, and we may instance his operation for the removal of pedunculated exostoses (p. 235) as likely to commend itself to all who have such growths to deal with. Traumatic rupture of the membrana tympani is treated in an interesting manner. The reviewer has been much struck by the singularly white appearance of the inner wall of the tympanum when seen through a traumatic rupture, as compared with its intense red hue when the perforation has resulted from inflammatory changes. This is not mentioned by the author.

A lengthy chapter is devoted to diseases of the nose, pharynx and naso-pharynx connected with diseases of the middle ear, but without reference to deformities of the nasal septum. Chronic hypertrophy and post-nasal adenoid vegetations naturally occupy a large proportion

of the space, the precautions in regard to the anæsthesia and posture during the operation for the removal of these growths evidently being a favourite study of the author. His remarks on the adaptation of the guillotine to the enlarged tonsil, so as to get as small a ring as possible over the structure, deserve careful attention (p. 291); observation will amply confirm their correctness. The removal of adenoids in the sitting-up posture under nitrous-oxide anæsthesia is not mentioned, though we should think it well worthy of the writer's consideration. In the diagnosis and treatment of Eustachian narrowing Mr. Hovell is opposed to the use of Eustachian bougies (pp. 140, 329), which many consider valuable and some indispensable. In discussing diseases of the tympanic cavity he wisely indicates a marked distinction between the catarrhal and the sclerotic forms of chronic non-suppurative inflammation of the middle ear. In the catarrhal form he is in favour of the introduction of remedies in a fluid form through the Eustachian catheter and into the middle ear, though, of course, much diluted and in very small quantity, one or two drops being placed in the catheter and blown in in a spray-like form. Among the available fluids he omits liquid vaseline.

The chapter headed "Changes in the Membrana Tympani and Various Affections of the Ear" contains a considerable amount of valuable information, including as it does the consideration of relaxed cicatrices, persistent perforations, the artificial drum and the diagnosis and treatment of adhesions between the membrane and the inner wall of the tympanum. He mentions Politzer's multiple incisions in the treatment of relaxed cicatrices, but makes no reference to the application of collodion. We think the trichloroacetic method of stimulating the edges of persistent perforations deserves some notice. Good accounts are given of the formation of cholesteatoma in the attic (p. 439), and in the middle ear and antrum (p. 487), where he states, following Professor Habermann, that "the process of epidermization extends over the margin of a perforation to the ulcerated mucous membrane of the middle ear, and it is not only the tympanum but the mastoid antrum that becomes coated with epidermis, and then after the inflammation ceases healing takes place." Polypi of the ear receive adequate attention. Although the classification according to their structure is a little confused, we cannot speak too highly of the paragraphs in which the diagnosis is discussed. Caries and necrosis of the temporal bone are well described. The writer (p. 521) is not in favour of removal of the ossicles unless at the same time the mastoid antrum, aditus and tympanum are laid open. With regard to chronic suppuration in the attic, he describes the original operation devised by Stacke, but he prefers opening the mastoid antrum and continuing the operation so as to expose the attic and the tympanum—what is best known as the "modified" Stacke operation. In acute inflammation of the mastoid cells, the result of acute middle-ear suppuration, he has found that, as a rule, there is only one abscess cavity, and this is almost invariably isolated. In chronic cases, on the other hand, the mastoid antrum, attic, tympanum and external meatus have to be thrown into one cavity. Ballance's method of lining the cavity with a large Thiersch's graft receives the fullest approval, and is described in considerable detail.

The chapter on the cranial and other complications of middle-ear suppuration, when compared with the same one in the first edition, shows evidence of ample revision, and is brought well up to date.

Mr. H. P. Dean's article in Treve's "System of Surgery" is called into considerable requisition, to the great advantage of the reader. The paragraphs on phlebitis and thrombosis of the sigmoid sinus and the jugular vein, though excellent, are condensed almost beyond what the importance of the subject demands. The author looks upon ligation of the internal jugular vein as "sometimes necessary"; most authors seem to agree that it is generally necessary, and that the cases in which it could be dispensed with are exceptional. Professor Mac-ewen's remarkably successful series of cases, however, go strongly to support the author's views.

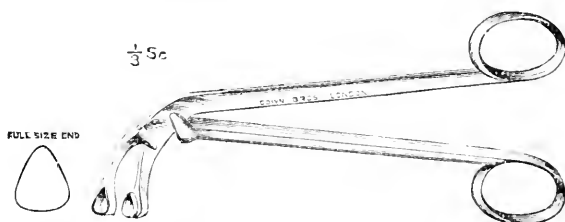
Chapter xxxv. deals in considerable detail with the local and general affections liable to cause disorders of hearing, including diphtheria, scarlet fever, measles, influenza, etc.

Sufficient has been said to show the value of the work, which, if a somewhat bulky volume, certainly justifies its existence as such, embodying, as it does, a very exhaustive account of the diseases of the organs of hearing, and all the opinions of the best authorities on the subject.

D. G.

NEW INSTRUMENT.

THE tonsil punch forceps illustrated in the accompanying diagram has been designed by Mr. William Delany, L.R.C.P.I., L.R.C.S.I., who writes that it "effectively removes those large, flat, vertically-



elongated tonsils occasionally met with, and which cannot be grasped by a guillotine. It has this advantage over the circular punch forceps: the surface from which the tonsil is removed is even. The instrument has been made for me by Messrs. Down Bros., 21, St. Thomas's Street, London, S.E."

BOOKS RECEIVED.

- T. Mark Hovell, F.R.C.S.** Ed.—*Diseases of the Ear and Naso-Pharynx*. Second edition. J. and A. Churchill, London.
- Thomas Barr, M.D.**—*Manual of Diseases of the Ear*. Third edition. J. Maclehose and Sons, Glasgow.
- Richard Lake, F.R.C.S.**—*Laryngeal Phthisis or Consumption of the Throat*. Rebman, Ltd., London. 1901.
- The Medical Annual*. A Year-Book of Treatment and Practitioner's Index. John Wright, Bristol. 1901.

THE
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**THE VENTRICLE OF THE LARYNX AS A HARBOUR FOR
DIPHTHERIA BACILLI.**

BY W. JOHNSON HORNE, M.B., B.C.,

Surgeon to the Metropolitan Ear, Nose, and Throat Hospital.

IN a communication made to the British Medical Association when it met at Edinburgh in 1898¹ I drew attention to the frequency with which I had found tubercle bacilli in the recesses of the ventricles of larynges, which to the naked eye presented entirely normal appearances, but had been removed from subjects dead of pulmonary tuberculosis. I further reported that in some specimens which I had microscoped the disease had apparently started in the under-surface of the ventricular band. These observations led me to investigate the ventricles with a view to ascertaining whether they might not be the lurking places of other organisms, and so afford some explanation of the negative results from bacterioscopic examination of cases which run a definite clinical course, and perhaps to a fatal termination, without the specific cause being ascertained.

In the matter of diphtheria, it must have come within the experience of all of us to have observed cases in which the clinical evidence left no doubt in our minds as to the nature of the disease, but from which we have failed to obtain for the bacteriologist the material necessary for demonstrating the positive proof. In illustration of this fact, and of the part played by the ventricles of

¹ *Journal of Laryngology*, vol. xiii., 1898.

the larynx, I may refer to the following case: A child, one year and nine months old, developed a croupy cough, dyspnoea of a very threatening nature rapidly ensued, so that tracheotomy had to be performed. The fauces presented none of the characteristic appearances of diphtheria, nor was there present any glandular swelling in the neck. Cultures made on two different occasions from the mouth yielded no diphtheria bacilli. After tracheotomy was performed, some membranous-looking material was coughed up through the wound; this was examined for diphtheria organisms with negative results, staphylococci only being present. The case was none the less regarded as one of diphtheria, and treated as such with injections of antitoxin, but without a fatal issue being averted. At the post-mortem examination no membrane was present in the pharynx or larynx; the tracheal wound was healthy, except that the edges were surrounded by an adherent whitish membrane. In cultures I made on serum-agar directly from the freshly exposed surfaces of the larynx and the trachea, I failed to find diphtheria organisms, but in cultures made on the same media from the interior of the ventricles of the larynx, I succeeded in obtaining a growth of diphtheria bacilli.

Since then a second and precisely similar case has come under my notice. Such cases, I think, go to show that the ventricles of the larynx may at times form harbours for diphtheria bacilli, and that those fatal cases of so-called membranous laryngitis, which, owing to the organism not having been met with, have been regarded as non-diphtherial in nature, may really be cases of true diphtheria. Moreover, facts such as I have mentioned may explain some of those recurrences of diphtheria in which external sources of infection can almost certainly be excluded in the second attack.

NOTES.

A LARGE number of the members of the OTOLOGICAL SOCIETY OF THE UNITED KINGDOM were present at a meeting of the Society held at Edinburgh on May 11, 1901. The proceedings are given in abstract on another page, and it will be seen that, so far as scientific interest was concerned, the time was valuably expended.

Mr. Charles A. Ballance, opening a discussion with a paper replete with literary and technical interest, paid an eloquent tribute to the associations of the town in which the meeting took place, specially to Dr. John Brown, author of "Rab and His Friends"; Sir James Y. Simpson, and Lord Lister, the main part of whose life's work had been carried on in the Metropolis of the North.

It will be seen that the subject under consideration excited the liveliest interest among the members present, and although it cannot be said that any very strikingly new principles or methods were formulated, the subject was very instructively ventilated, and much valuable interchange of opinion and experience with regard to the vital questions involved took place. When circumstances permit of the publication of Mr. Ballance's paper *in extenso*, we are sure it will be read with interest and profit, and that both it and the discussion which we have here sketched will form a valuable contribution to the proceedings of the Otological Society.

The weather was most favourable, and the beauties of the romantic town were to be seen in their highest perfection. The visiting members were entertained most hospitably by their Edinburgh confrères, and a large number were conducted over the Forth Bridge, where the points of interest were demonstrated to them by the engineer. Extra-metropolitan meetings are, as a rule, difficult to organize, but this one may be considered to have been in every respect successful.

A German Committee in furtherance of the objects of the Tuberculosis Congress, to be held in London at the end of July, has been formed, with His Serene Highness the Duke of Ratibor, His Excellency Count von Posadowsky, and His Excellency Minister Dr. Studt, as Honorary Presidents. The other members of the committee are Ministerial Director Dr. Althoff, Privy Councillors and Professors Eulenburg, Ewald, Gerhardt, Heubner, Kirchner, President Koehler, President Gäbel, Government Councillor Professor Kossel, His Excellency Dr. von Leuthold, Privy Councillor von Mendelssohn-Bartholdy, Staff Surgeon-Major Pannwitz, Professor Posner, Surgeon-General Schaper, Surgeon-General Schjerning, Privy Councillor Schmidt, and Privy Councillor Virchow. The Secretary of the Committee is Surgeon-Major P. Jacob.—*British Medical Journal*.

According to the *New York Medical News*, American medical scientists will be both numerous and prominent at the Congress. Professor William Osler, of Johns Hopkins University, has been invited to organize the American contingent. Among those who have already signified their intention of attending are Dr. Trudeau of New York, Professor Solly of Colorado, Dr. Herman Biggs of New York, and Professor McEachran of Quebec, head of the Dominion Veterinary Service.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

Sixty-fifth Ordinary Meeting, April 12, 1901.

E. CRESSWELL BABER, M.B., *President, in the Chair.*

The following cases and specimens were shown :

Case of Tumour of Right Vocal Cord, with a Swelling on the Leg, in a Boy. Shown by Mr. SPENCER.

This case was shown at the last meeting. Since then the patient had taken 15 grains of iodide of potassium daily, and ung. hydrargyri had been applied to the leg every night.

Both swellings had largely subsided, tending to show that both had origin from the same cause, namely, inherited syphilis.

Mr. Spencer proposed to increase the dose of iodide of potassium, in order to obtain their entire disappearance.

Man, aged Thirty-three, with Chronic Laryngitis and an Ulcer on One Vocal Cord. Shown by Dr. STCLAIR THOMSON.

The patient presented himself for hoarseness, and a constant desire to clear the throat, which had commenced about six months ago. When he was first examined there was general subacute laryngitis, the cords were congested, irregularly thickened, and rounded. On the anterior third of the left vocal cord there was an oval, boat-shaped ulcer, covered with a grayish slough. A thickening on the opposite cord appeared to fit into this ulcerated depression on phonation.

His temperature was 98·8°; pulse 86. There were no symptoms suggestive of tuberculosis, and nothing was found in his chest. There was no definite history of lues, but he was put on 10 grains of iodide of potassium three times a day. On a subsequent occasion I examined his nose, and found each middle meatus covered with dirty greenish crusts. He was given a cleansing lotion, and at his last visit no crusts were visible; his left nose was clear, but there was some pus in the right middle meatus and in the right choana. In spite of the improvement in his nose, the hoarseness was worse. This was a fortnight ago, and I have not seen him since, but show him to-day, before further

treatment is carried out, to see if members agree that the chronic laryngitis and ulcer are both due to infection from the nose.

Sir FELIX SEMON thought it was a simple case of chronic laryngitis, and was not tubercular or specific.

The PRESIDENT said he was not sure of the presence of ulceration in this case.

Dr. STCLAIR THOMSON, in reply, said that at first the idea of tubercle had occurred to his mind whilst diagnosing the case; but the temperature was normal, the pulse not hurried, and though repeated examinations of the chest were made, no signs of pulmonary tuberculosis were detected. There was no history of syphilis. Iodide of potassium was given, but this did not improve the patient—in fact, the drug made him much worse. There was nothing definite about the nose, but there was a good deal of catarrh. He decided in favour of chronic laryngitis, possibly of nasal infection.

Case of Infiltration of Right Cord of Three Months' Duration in a Man aged Forty. Shown by Dr. STCLAIR THOMSON.

This man has been hoarse since early in January. It will be seen that the posterior two-thirds of the right cord is represented by an even, red infiltration. The cord moves freely. There is some general hypertrophic laryngitis. The cavum is clear; some polypi have been removed from each nostril. He has had some treatment with iodide of potassium, although there is no history of lues. Rest to the voice and abstinence from tobacco and spirits do not appear to have improved him.

Dr. JOHNSON HORNE considered that the changes to be seen in the larynx suggested pachydermia diffusa.

Dr. STCLAIR THOMSON, in reply, agreed with the remarks put forward by Dr. Johnson Horne, and thought the case more like one of pachydermia diffusa. The patient had been watched for some time. He was suspected of being addicted to alcohol.

Case of Infiltration of the Right Vocal Cord of Six Months' Duration in a Man aged Fifty-six. Shown by Dr. STCLAIR THOMSON.

This patient has been hoarse since September, 1900. The central portion of the right cord is rounded, red, and infiltrated. As to the movement of the affected cord, I have been considerably puzzled. At times it has appeared to move freely, but on other occasions I have felt convinced that it was slow and partially tethered in its excursions. The rest of the larynx is normal. He presents no changes in nose, pharynx, or chest. There is no

history or suspicion of lues, but he has been given iodide of potassium up to 15 grains, three times a day, without any result. His weight is 12 stone $9\frac{1}{2}$ pounds, and does not vary. Feeling that the appearances were uncertain and suspicious, I asked Sir Felix Semon to see the patient, which he kindly did about four months ago, and his conclusion was that there was not then sufficient evidence to justify a diagnosis of malignancy. Two months ago the patient was seen by Mr. Butlin, who wrote to me as follows:

"I do not think it is a new growth. It is too smooth, and there is too free movement of the cord. Also, his voice is not so badly affected as I should expect it to be with a malignant tumour of that size and character. On the other hand, I do not think that so definite and limited a swelling of the cord is likely to be due to any ordinary chronic inflammation. It is not like tubercle, not quite like syphilis, not like any of the 'infective' group of tumours. I have twice opened the larynx for somewhat similar tumours, under the impression that, if the disease was not malignant, it was too suspicious to be left. In one case I found in the centre of the rounded swelling a little mass of what appeared to be coagulated blood, in the other something of the same kind, but not so dark coloured. One of the patients was a clergyman, the other a commercial traveller, therefore they both used their cords a good deal. I cannot help suspecting that this may be a case of a similar kind, in an agent who talks a good deal. In both my cases there was the same redness of the affected cord. I do not know whether you can get rid of the tumour without incising it or carefully cutting it away, taking the greatest care not to injure the cord itself in doing so. To do this may necessitate the opening of the larynx from the neck."

Both my patients are voice users; this one is a commercial traveller, while the former one is a shop-assistant.

One of Mr. Butlin's cases is described by Sir Felix Semon in an article on "Blood-clots simulating Neoplasms in the Larynx,"* and the description there given certainly suggests a similarity to the present case.

Case of Laryngeal Neoplasm occurring on the Posterior Wall, and accompanied by Paresis of Left Vocal Cord, in a Man aged Forty-nine. For Diagnosis. Shown by Dr. SCANES SPICER.

The only symptom had been hoarseness of gradual onset, commencing over four years ago. The growth was sessile, and

* "Annales des Maladies de l'Oreille," etc., xxv., 1899, No. 8.

attached to the posterior wall. A portion was curetted off, and reported by a pathological expert to be tubercular. Six weeks later a further portion was removed, and was deemed, after examination by the same expert, to be malignant. There had been no pain, hæmorrhage, or emaciation, and there are no enlarged glands; no purulent infection from sinuses or nasal stenosis. There is neither history nor sign of syphilis or tuberculosis, and nothing to suggest excessive or perverted use of voice, or special exposure to dust in occupation. The patient had been on potassium iodide (gr. v., t. d. s.) for two months with no effect on his condition. Dr. Spicer inquired whether the Society considered that the clinical appearances were so suggestive of malignancy as to demand laryngo-fissure.

Sir FELIX SEMON feared the growth was malignant. Seeing that it was so very small, he advised an exploratory thyrotomy to aid the diagnosis, which was certainly difficult.

In reply, Dr. SCANES SPICER said that, as there was a conflict between the evidence of the histologist and that of the history of the case, and as the clinical appearances were equivocal, he welcomed the remarks that had fallen from Sir Felix Semon. He had not seen the section himself, but clinically he doubted the malignant theory.

A Case of Laryngitis with Marked Subglottic Hyperplasia occurring below the Anterior Commissure in a Man aged Thirty-six. For Diagnosis. Shown by Dr. SCANES SPICER.

The illness commenced with hoarseness four months ago. The patient is anæmic, but there is no evidence of tuberculosis, there being no emaciation, night sweats, hæmoptysis, or cough, and there is no history of any other disease. The treatment for the last month had been a spray of chloride of zinc and small doses of iodide of potassium. Dr. Spicer thought the case was not at all plain, and, seeing that the patient was a corn-dealer, he inquired whether it was possible that a husk had become embedded in the larynx. Occasionally the epiglottis and aryepiglottic folds became œdematous.

Dr. DUNDAS GRANT thought it was a case of tuberculosis.

Dr. PEGLER said, had not the evidence against tubercular disease of the lungs been confirmed, he would have regarded the laryngeal disease as tuberculous, to judge from a casual inspection. In testimony of how deceptive appearances sometimes were, he would mention a case very recently under his care, which was brought to his mind by a remark of Dr. Spicer's, that the œdema in this case might have been caused by the irritation of a husk swallowed by

the patient. A middle-aged woman came to the hospital, stating that she had swallowed a fish bone a week previously, and still felt it sticking in her throat. Examination of the larynx failed to reveal the bone, but a very marked œdematous swelling was seen occupying the left arytenoid region, and obscuring the glottis and both vocal cords, except quite the anterior portion of the right one. As this œdema might be due to one of several sources of irritation, a portion of tissue was removed for examination by Mr. Lake, who saw the case with the speaker. No bone was found, but the swelling began to subside, and a week later the patient brought a comparatively large plaice-bone to the hospital which she had hawked up. After this the œdema rapidly disappeared.

Mr. LAKE felt very much inclined to recommend the use of mercury in some form.

A Specimen of a Larynx from a Case of Primary Laryngeal Diphtheria. Shown by Dr. LOGAN TURNER.

The case was of interest from the fact that the disease was confined entirely to the larynx, that it occurred in a strong vigorous adult, and that it ran a rapidly fatal course. Frequent attacks of severe dyspnœa necessitated tracheotomy. *Post-mortem* examination showed the mucous membrane of the larynx to be covered with diphtheritic membrane, which extended from the apex of the epiglottis to the cricoid cartilage. Bacteriological examination demonstrated the presence of the Klebs-Löffler bacillus and streptococci.

A Specimen of a Larynx for Diagnosis. Shown by Dr. LOGAN TURNER.

The larynx was removed from a boy aged eight years, who had died suddenly during the night from asphyxia, resulting from the drawing of vomited matter into the larynx and bronchi. All the organs of the body were healthy.

The mucous membrane of the larynx and upper part of the trachea was studded with a number of small white points, varying from a half to one millimetre or more in diameter, and resembling small miliary tubercles. The posterior surface of the epiglottis was almost completely covered by a white patch of a similar kind. There was no evidence of ulceration or swelling.

The microscope showed that each patch appeared to consist of a small area of lymphoid tissue, lying beneath the epithelial layer, and infiltrating between the glands of the submucous layer. There was a small communication with the surface. There were no giant-cells or other evidence of a tuberculous condition.

Dr. JOBSON HORNE said he had examined the larynx, and also the microscopic section; he did not consider the minute nodules to which attention had been directed had any pathological significance. By the epithelium having been destroyed, the underlying structure had become more obvious.

A Case of Destruction of the Nose caused by a Ferret. Shown by Mr. WALSHAM.

The patient is now twenty-four years of age. At the age of three months a ferret was found gnawing her face. The whole of the nose, part of the skin of the forehead, and a large part of the middle of the upper lip, were destroyed. She has had eighteen plastic operations, the most successful being done by Sir Thomas Smith in 1887, when the skin was taken from the arm, the arm then bound to the face for three weeks to fashion the nostrils, and the lip was repaired. The lip was very successful, and the left nostril fairly so. She has had the Indian operation done also, but it was a failure.

The right nostril was open, but closed up after the last operation in 1899.

The PRESIDENT said that he agreed with Mr. Walsham that nothing further should be done. He added that he understood from Mr. Walsham that the introduction of cartilage in this case had been tried without success.

A Case of Epithelioma of the Larynx. Shown by Dr. JOBSON HORNE.

The patient, a man aged sixty-nine, stated that in August, 1899, he had "influenza," which was followed by some impairment of voice, and which had gradually increased; he had experienced no pain or discomfort, and had not troubled about medical advice. Excepting an occasional cold, he considered his general health had been good.

The growth occupied the anterior two-thirds of the right vocal cord, and appeared to be confined to this region. The greater part of the growth was a papillomatous mass filling the anterior third of the glottis. Being partly concealed under the ventricular band of the opposite side, it could only be fully brought into view on deep inspiration. The right vocal cord was motionless. The left was not affected. There was some general congestion of the larynx, but this was not more marked on the right than left. No glandular enlargement had been made out.

Thirty grains of iodide of potassium had been taken daily during

the previous fortnight without any material change being noted. This case was shown to ascertain opinions as to diagnosis.

The PRESIDENT said it looked like malignant disease. There was want of action on the right side of the larynx.

Sir FELIX SEMON was of opinion that there could hardly be any doubt as to the malignancy. There should be no hesitation in performing thyrotomy and removing the growth.

Dr. FITZGERALD POWELL said he had seen the patient in January last, and had advised operation, thinking there was no doubt as to the malignancy of the growth. The patient had declined operation, and he had not seen him again until now. Though still thinking it malignant, he was struck by the fact that the tumour had not grown or altered very much since January.

Dr. JOESON HORNE, in reply, expressed his thanks for the opinions that had been given, which he also shared.

Case of Tubercle of the Larynx in a Man aged Eighteen. Shown by Dr. FITZGERALD POWELL.

The patient states that he had suffered from gradually increasing hoarseness and difficulty of breathing for the last four years, accompanied by cough and attacks of suffocation at night. Five years ago he had erysipelas of the face and head, and twelve months ago the eruption, now apparent, on his nose and face appeared. He complains of pain in swallowing.

On examination, the epiglottis, arytenoids, ventricular bands, and as much of the larynx as can be seen, are found to be pale and much swollen, and there appears to be very little room for respiration. The swelling in parts is covered by superficial erosions.

He had applied a 5 per cent. ointment of salicylic acid to the nose and face, which had caused some improvement, and he proposed curetting the larynx and applying lactic acid.

Specimens from Recent Cases illustrating the Two Chief Classes of Intranasal Papillomata. Shown by Dr. WYATT WINGRAVE.

1. The squamous variety regionally belonging to the vestibule, and histologically identical with an ordinary cutaneous wart.

2. The columnar or cylindrical variety only growing on mucous membrane, and therefore never found in front of the lumen vestibuli.

The latter may grow from the septum, floor, or turbinals, and is often referred to as a "moriform growth." Histologically it presents digitations of myxœdematous tissue covered with columnar

or "palisade" epithelium, ciliated and smooth, resting upon a hyaloid basal border.

Warts on the mucous membrane may, however, be covered with squamous epithelium, a heterologous feature which is due to irritation causing retrograde changes, as seen in atrophic rhinitis, and often in slowly growing polypi.

One specimen is that of a "bleeding tumour." It is a squamous papilloma, which grew from the septum about half an inch behind the lumen vestibuli and above the floor. The "core" consists of numerous bloodvessels with very thin walls, which run into the digitations. Nests are found, but not of the "horny" variety so characteristic of the vestibular and cutaneous variety. The surface epithelial laminae are also thinner.

Bleeding tumours, other than malignant and granulomatous, most frequently are of one of these two types of papillomata.

Drawings of (1) Cyst in the Floor of the Nose; (2) Pachydermia Laryngis (Tubercular). Shown by Mr. RICHARD LAKE.

The PRESIDENT congratulated Mr. Lake on the excellent drawings he had shown to the Society.

A Case of Pharyngo-Mycosis in a Female. Shown by Mr. ATTWOOD-THORNE.

Dr. SCANES SPICER said the question to be considered was whether these cases should be actively treated or not. When the patients were worried by symptoms such as a sensation of a foreign body, scraping, discomfort, sourness of breath, unpleasant taste, and flatulent dyspepsia, he would recommend active treatment, such as the free and regular use of alkaline antiseptic washes, the application of perchloride of mercury solution to the crypts, or the insertion of the galvano-caustic point into three or four or six of these at a time. He usually found that these cases were very obstinate, and that even long holidays, alternating with periods of active treatment, by no means guaranteed freedom from recurrence. Patients suffering from mycosis were not as a rule content to be left alone.

Dr. PEGLER inquired whether a bad taste in the mouth was complained of, as in a case of his own at present under treatment this was the principal symptom, and it was one to which some text-books gave prominence.

Dr. FITZGERALD POWELL advised scraping with a sharp curette once or twice a week, and the application of a solution of nitrate of silver, 20 to 30 grains to the ounce.

Dr. WYATT WINGRAVE emphasized the importance of differential diagnosis between true leptothricia and keratosis of the tonsils. The latter appeared as hard papillary projections from the lacunæ, not easily removable, and showing under the microscope typical horny epithelium with few or no leptothrices. He had found a saturated solution of salicylic acid (well rubbed in) the best treatment for keratosis, while true pharyngo-mycosis yielded to sulphurous acid and antiseptics.

Dr. PARKER thought that the most important point to be remembered in the treatment of cases of mycosis was that, in the early stages of the trouble, the fungus was very firmly adherent and very difficult to remove or destroy, but that if it was left alone for a few months—some placebo being given to the patient in the meanwhile—the fungous growth generally became quite loose, and it could then be easily wiped away. He therefore recommended that such cases should be left until the growth became loose.

Sir FELIX SEMON said that, in discussing the treatment of pharyngo-mycosis, the Society was going over old ground, as the same subject had only recently been discussed by the members. At the former discussion everyone who spoke recommended this or that remedy as giving excellent results, and there was, altogether, a great variance of opinions. Personally, he found that these cases, whether of the leptothricial type or a true keratosis, always occurred in people very much below par, and if they were ordered change of air, tonics, rest, open-air exercise, etc., they would, in his opinion, get well without any other treatment, medicinal or operative. In his experience a bad taste was not at all usually present in the mouth.

Mr. ATTWOOD THORNE, in reply, said that the patient complained of no bad taste in the mouth. Personally, he was inclined to avoid any active treatment.

Case of Antral Suppuration with Marked Distension of the Inner Antral Wall. Shown by Dr. HERBERT TILLEY.

The patient is a boy aged sixteen, who came under treatment for inability to breathe through the right nostril and a purulent nasal discharge, associated with feelings of languor and general depression.

Examination of the right nasal cavity showed a large swelling of the inner antral wall, which touched the septum opposite. On pressing it outwards with a probe, a crackling sensation and noise were produced. A ridge of bone traversed the swelling from above downwards, and at first sight the appearance closely resembled that

of a swollen middle turbinal, but the latter bone could be seen in its normal position above.

The bony ridge referred to was undoubtedly the uncinate process of the ethmoid, and immediately in front of this the soft bulging could be easily penetrated by an ordinary surgical probe.

The right second upper bicuspid, which was carious, was removed, and for three months the patient had been irrigating the antrum twice daily with various antiseptic washes. As long as these were continued, the discharge practically ceased, but if the irrigation was interrupted for two or three days, then the discharge reappeared. The question arose as to whether any radical operation, such as removal of the bulging inner wall, or even a more radical procedure, should be adopted. The patient's father was very averse to any operation unless it was absolutely necessary for the cure of the case.

The PRESIDENT said that Dr. Tilley's motive in showing the case was to receive suggestions for treatment. It seemed as if the inner wall of the antrum was very much bulged, but, to make certain of this, examination of the parts with a fine probe was necessary. He would not advise a radical operation being done at present. The opening had only been made in January last, and the discharge, according to the patient, was slight in quantity, therefore he thought syringing should be continued for a time.

Dr. FITZGERALD POWELL said that if it was a fact, as he understood was the case, that there was no discharge at all, he did not think it was necessary to do a radical operation on the chance of discovering polypi.

Dr. SCANES SPICER saw no objection to waiting a little longer before resorting to further operative measures, but in his opinion something more radical would have to be done, either through the nose or through the canine fossa, for the reason that the discharge through the ostium maxillæ was an irritating one, and was keeping up ethmoiditis and inflammation of the uncinate body, producing the appearance which had been described as "cleavage."

Case of Cyst of the Thyroid. Shown by Dr. PEGLER.

The patient was an elderly woman under the care of Dr. Frederick Spicer, for whom the exhibitor had offered to show her to the Society. An operation was contemplated next day, and Dr. Spicer would be glad of suggestions.

The swelling was the size of an orange, tense, fluctuating, and having a history of about eighteen months' duration. There were

pressure symptoms, which had increased latterly, and the larynx was considerably displaced.

The PRESIDENT said that he was always doubtful as regards the cystic nature of these growths. He had had a large experience of them, and he was of opinion that without puncturing it was not possible to say whether they were cystic or not. This, he believed, had not been done in this case; probably not one, but several cysts would be found. With regard to treatment, the shelling out of these cysts could usually be accomplished without much difficulty; but in those cases where it could not be done, he had adopted the plan of opening the cysts and sewing the wall to the edge of the skin, allowing the cavity to granulate up. It took a longer time, but gave good results. He had been in the habit of puncturing goitres for exploratory purposes for many years, but had had an unusual experience lately. Immediately after puncturing a moderate-sized goitre in a woman aged twenty-five, and evacuating only a few drops of blood, the gland swelled up slightly, and a few days afterwards he heard from the medical man that an extensive ecchymosis had come out, extending down to the nipples. This soon subsided, and the gland returned to its previous size. Some tachycardia was present in this case, but no exophthalmos.

Dr. DUNDAS GRANT asked if others members of the Society had had good results from tapping and then injecting perchloride of iron, as formulated by Sir Morell Mackenzie. He had several cases in which this procedure answered well. He was guided beforehand by the degree of collapse that the cyst underwent after tapping, and previous to injecting with iron.

Sir FELIX SEMON could answer Dr. Grant's question. Some fifteen or twenty years ago he had a very lively controversy in the *British Medical Journal* on the injection treatment of goitres. He then quoted a number of cases, showing that the injection of iodine occasionally was very dangerous. Since then he knew of another case in which injection of iron after puncturing a cyst had been followed by inflammation of the gland, sepsis, and death. In former years he himself had used injections a good deal in his cases, and had never personally had any bad result, but he had now completely given up this method of treatment. The surgery of the thyroid gland had made such advance that one ought not to have recourse to such expedients as injections now, when one could remove the whole thing more simply and surgically.

The PRESIDENT agreed with Sir Felix Semon that the injection of iron was not satisfactory. It might produce an abscess, and give rise to a great deal of trouble.

Dr. STCLAIR THOMSON thought that in modern surgery the method of tapping and injecting cysts had gone out of practice. It was simply done in the pre-antiseptic days from fear of opening these cavities, but now they might be opened perfectly harmlessly.

Dr. FITZGERALD POWELL said he thought the best treatment was removal of the tumour. He considered that there was a good deal more danger in tapping and injecting these cysts than in shelling them out. He referred to a case in which he witnessed a well-known surgeon introduce needles for treatment by electrolysis. The patient died within half an hour.

Case of Rhinolith (?) in a Child. Shown by Mr. R. CHARSLEY.

Mr. ATTWOOD THORNE considered that the case was one of foreign body, and expressed a wish that a further report of the case be made at the next meeting.

The PRESIDENT would prefer to call it a case of foreign body rather than rhinolith; he had used a probe, but could feel no solid body. There was either a growth or a foreign body obstructing the nostril.

Dr. CHARSLEY could obtain no information of any foreign body having been put in the nostril. The body was white, hard, and very movable, but he was puzzled to know exactly what it was. He saw the patient for the first time on the previous day.

N.B.—The day after the meeting the boy was anæsthetized, and a block of white indiarubber, 1 inch long by $\frac{1}{2}$ inch broad, was removed from the nostril.

Case of Unusual Tumour on the Posterior Wall of the Larynx. Shown by Dr. LAMBERT LACK.

The patient is a female, married, aged thirty-nine, who for fifteen years has had occasional difficulty in swallowing. This has been worse for the last three months, and the voice has been weak. The patient is thin, but not wasting, and there are no enlarged glands in the neck. On laryngoscopic examination a large, nodular, pale tumour is seen projecting from the posterior surface of the arytenoids on the right side. It is soft to touch, and grows apparently from the posterior surface of the cricoid cartilage. The growth is almost certainly not epithelioma, and appears to be either simple or possibly sarcomatous. Suggestions as to diagnosis and treatment are asked for, since as far as the exhibitor's experience goes the case is quite unique.

Sir FELIX SEMON considered it a very interesting and rare case. Of one thing he felt sure, and that was that it was not carcinoma-

tous, and he was very strongly of opinion that it was not a sarcoma. If it were a malignant growth, there would be by now secondary infection of the lymphatics, and there would also be deficiency of movement of the vocal cord on the affected side from myopathic disability of the posterior crico-arytænoid muscle. Both these signs being absent here, he was convinced of the innocent nature of the growth. He advised that the growth should be removed by the snare internally, and should be submitted to microscopical examination, and he would be guided in the future treatment of the case by the result of that examination.

Dr. STCLAIR THOMSON thought that it should be described as an œsophageal growth. It seemed to him to be a simple growth, and he agreed with Sir Felix Semon's remarks. Sir Felix and he had seen a similar case in consultation together. The patient was a lady from the Cape, who had a suspicious-looking growth behind the larynx, and they had come to the conclusion that there was an abscess in connection with it, which of course there was not in Dr. Lack's case; but the tumour was like the one in the present case. His own patient returned to the Cape two or three years ago, and he had since heard that she had remained perfectly well. She was an elderly woman; the glands were not enlarged. No operative treatment was carried out.

Dr. JOBSON HORNE, referring to the remarks made by the previous speaker, said he thought the growth sprang primarily and mainly from the arytænoid region, and he regarded it as a laryngeal, and not as an œsophageal, growth.

Cases of Lupus of the Septum, and Widening of the Dorsum of the Nose in a Young Girl. Shown by Dr. DUNDAS GRANT.

Case of Pachydermia of the Vocal Processes in a Middle-aged Man. Shown by Dr. DUNDAS GRANT.

The patient, whose employment necessitated the use of his voice in directing the work at a large railway-station, had for one year been becoming gradually more and more hoarse. On the vocal processes there were found extremely typical pachydermic swellings. He was being treated by means of weekly applications of salicylic acid, and was improved as regards voice, although no change in the pachydermic swellings was obvious.

Case of Specific Perforation of the Palate and Ulceration of the Larynx of Tuberculous Appearance in a Middle-aged Woman. Shown by Dr. DUNDAS GRANT.

The perforation of the palate was typical of tertiary syphilis, and there was indirect evidence (miscarriages, etc.) of specific

infection. In the larynx the epiglottis was thickened and ulcerated all over in a manner resembling tuberculosis, but without any increase of secretion. Dr. Grant asked whether this appearance had been met with by other members in pure cases of syphilis; he was himself of the opinion that the process in the larynx was of tuberculous nature, and that, in fact, the case was one of mixed tuberculosis and syphilis. (Coloured drawings of the appearances in the pharynx and larynx by Dr. Mackintosh were exhibited.)

Dr. SCANES SPICER said that this case had been under his care some time ago. He regarded the present condition of the epiglottis as a tubercular one, for the appearances differed from all the syphilitic ulcerations he had seen. The epiglottis was really very similar to that in Dr. FitzGerald Powell's case. When he had the case there was no laryngeal involvement at all, but the palate presented the typical perforation and distortion of tertiary syphilis, just as seen now.

Sixty-sixth Ordinary Meeting, May 3, 1901.

E. CRESSWELL BABER, M.B., *President, in the Chair.*

The following cases and specimens were shown :

Case of Large Laryngeal Growth shown at a Previous Meeting.
Shown by Dr. BARCLAY BARON.

There was, on the previous occasion, some difference of opinion as to the nature of the growth, but it was generally agreed that it was attached by some sort of pedicle, and that its removal through the mouth would be easy. At the operation it was found quite impossible to remove it in this way, as the growth was a widely infiltrating epithelioma with no pedicle at all, the epiglottis and other structures of the larynx being implicated.

The patient is still living, the glandular infection being very considerable; he has declined to submit to a total extirpation of the larynx, which would be necessary to eradicate the tumour.

A Man, aged Sixty-one, from whose Left Vocal Cord a large Epithelioma was removed by Endo-Laryngeal Operation in 1886, and again in 1887, since which there has been no Recurrence. Shown by Mr. MARK HOVELL.

R. P——, aged forty-six, a stoker at some gasworks, came to the Throat Hospital, Golden Square, on March 17, 1886, suffering from severe dyspnoea, caused by a large growth of a whitish colour,

which almost filled the larynx. He looked pale and anxious, and perspired freely on the least exertion.

On March 20, after a solution of cocaine had been sprayed into the larynx, nearly the whole of the growth was removed through the mouth with cutting forceps. Free hæmorrhage occurred, but it quickly subsided. The growth came away easily, and after its removal was found to have been attached to the inner border and under surface of the left vocal cord for almost its whole length. Subsequently two or three small pieces were removed as before with cutting forceps, and when the patient left the hospital, on April 5, not a trace of the growth remained.

After the operation the patient gave the following history :

In the summer of 1884, whilst making up the fire, he suddenly experienced, for the first time, difficulty in breathing. The subsequent attacks of dyspnoea, which, as time went on, became more severe, used to come on suddenly and last for a few minutes. They came at irregular intervals, sometimes two or more in a day, and at other times only one or two during the week. In consequence of the attacks increasing in frequency and severity, he went to the Westminster Hospital at the beginning of 1885, and there saw Dr. de Havilland Hall, who wished him to become an in-patient ; but he refused to do so, and did not consent to this proposal until April, by which time the difficulty in breathing had considerably increased. He remained in the hospital three months, during which time some pieces of growth were removed by Dr. Hall. He was taken by Dr. de Havilland Hall to see Dr. Felix Semon at St. Thomas's Hospital, who attempted to remove the remaining portion of the growth. He left the hospital, but was subsequently taken by Dr. Hall to see Dr. Semon again, who then recommended the removal of the portion of the larynx to which the growth was attached. To this treatment the patient refused to submit.

He returned home and resumed work, and remained at it for three weeks or a month. The difficulty of breathing then became so great that he was obliged to seek further advice, and he went to St. George's Hospital with the hope that relief could be obtained there without an operation being performed. He saw Dr. Whiphram, and was made an in-patient. When he had been in the hospital about a week, he learnt that it was proposed to perform tracheotomy before an attempt was made to remove the growth through the mouth. He declined to have tracheotomy performed, and left the hospital. He then again returned to work, and remained at it until the end of 1885, when his breath was too short to enable him to continue at it any longer.

On March 17, 1886, he came to the Throat Hospital as before mentioned.

After leaving the Throat Hospital the patient was not seen again until May 2, 1887, on which date he returned, and was found to be in a condition similar to that which existed when admitted the previous year. On examining his larynx a growth was visible almost identical in appearance, both as regards size, colour, and macroscopic texture, to that previously removed. Subsequent to the second operation he told me that on leaving the hospital on April 5, 1886, he resumed work, and felt no discomfort until about January, 1887, when his breathing became a little short. The dyspnœa steadily increased, and about the middle of April he was obliged to discontinue work.

As the patient still refused to allow any extra-laryngeal operation, it was decided to again remove the growth with forceps. A solution of cocaine having been sprayed into the larynx, the growth was removed as before with cutting forceps. It was tougher than that of the previous year, and had a much larger base, being attached, not only to the under surface and inner edge of the left vocal cord, but also to its upper surface and to the left ventricular band. At the first operation, on May 9, although the hæmorrhage was greater than it had been at the former occasions, sufficient growth was removed to enable the patient to breathe with comfort. Another piece was removed on May 17, and the patient left the hospital on May 20. The last piece was removed on June 15, after which no trace of the growth was visible, and the surfaces from which it had been removed soon healed. The long intervals between the operations were made to suit Mr. Hovell's convenience, and were not caused by any unfavourable symptoms having occurred. On June 30 slight congestion of the larynx still remained; the left vocal cord moved but little, but the movement of the right cord was normal. His voice was strong and distinct, but slightly husky in consequence of the congestion.

The patient was examined on August 13, 1887, and there was no trace of the growth. The movement of the left vocal cord was impaired, but with the exception of slight general congestion of the larynx, and slight thickening of the interarytænoid fold, the result of chronic laryngitis, no abnormal condition was visible. The patient's voice was clear and strong, and there was no dyspnœa. The patient had been employed at the gasworks for twenty-one years, and the dusty work during this period would account for the chronic laryngitis.

The following microscopical report of the growth removed in 1886 was kindly made by my colleague, Mr. Frederick Eve:

"The growth removed in 1886 was an epithelioma with a markedly papillary surface. The papillæ were very long and filiform. The base of the growth, under the microscope, showed prolongations downwards of the surface epithelium. These were cylindrical, and terminated in a well-defined rounded or subdivided end. In some parts the growth of epithelium was more confused, and composed of tortuous columns or cylinders, which here contained numerous cell-nests; but these also existed in smaller numbers in other parts of the growth. The submucous tissue was nowhere present in the parts removed, but the epithelial columns forming the growth were so well defined that I do not suppose there was any diffuse infiltration of the mucosa with young epithelial cells.

"The growth removed in 1887 differed from that of the previous year in that it contained very few cell-nests, and these of small size. The epithelial columns were more confused and their margins less well defined. Some shreds of mucosa were attached to its base. These were composed of small spindle-cells and fibrous tissue, containing elongated nuclei and many small round or 'indifferent' cells. Looking at the matter solely from a histological point of view, I have no hesitation in expressing my opinion that the growth was an epithelioma. This is based on the extensive and characteristic ingrowth of epithelium, the presence of cell-nests, and the general appearances of the neoplasm.

"P.S.—I have formed an impression that epitheliomata are less highly malignant if distinctly warty or papillary on the surface; whilst, when the opposite condition exists and the surface is flat or ulcerated, the infiltration below is wider and more diffused and the growth more malignant. As examples of comparatively lowly malignant warty epitheliomata, I may mention chimney-sweep's cancer of the scrotum and the epithelioma following ichthyosis of the tongue. This may account in some measure for the successful issue of your case."

Mr. Hovell, in conclusion, said that, although the attempt to remove an epithelioma from the larynx by means of forceps was not a procedure which in an ordinary case would be entertained, or, if undertaken, would in the large majority of cases have any chance of success, yet exceptional cases must be dealt with in an unusual manner.

In the present case the man was fortunate to have got rid of the disease by the measures adopted; but, although in his case a

cure had been effected, it was to be hoped that other patients would not persistently refuse to have the affected region exposed and efficiently dealt with, or decline to have even a preliminary tracheotomy.

Mr. DE SANTI said that he was extremely interested in the history, the line of treatment, and the result of this case. What one had to consider in the matter was, firstly, the microscopic appearances of the sections submitted to the meeting; and, secondly, the clinical features presented by the history given. He had very carefully examined the microscopic sections, and must state that he could not find in their appearance anything whatever pointing to epithelioma. The drawing shown was a very artistic one of a perfect epithelial cell-nest, but in no part of the sections could he find anything even like an imperfect cell-nest. Moreover, cell-nests might occur in growths that were not epitheliomatous. He felt certain that as regards the microscopic appearances the diagnosis of epithelioma must be considered non-proven. Again, looking to the clinical aspect of the case, the time over which it had extended, together with the great size of the growth, as shown by the drawing, was quite unlike any epithelioma he had ever seen or heard of. If the growth had been malignant and had existed as long as stated, there must have been extensive infiltration at its base, and no endolaryngeal operation could possibly have eradicated the disease as the disease had been eradicated in this instance. Neither, therefore, did the clinical features or the microscopic appearances warrant the diagnosis of epithelioma, and in his opinion this conclusion was more than supported by the result obtained by the removal of the growth by endolaryngeal forceps. In his opinion the growth had been of an innocent nature throughout.

Sir FELIX SEMON declared his entire agreement with the remarks of Mr. de Santi. It would not be expected of him, after the lapse of fifteen years, that he should recollect the case; and, indeed, he frankly confessed that he had no recollection whatever of it. What he was going to say would be based only on the drawing which Mr. Hovell had shown to the Society, on the microscopical appearances, on the clinical features of the case, and finally on the present appearance of the patient's larynx. From all these points of view, he could not help confessing that the case was a mystery to him. To begin with, he could not reconcile the idea of malignancy with the clinical appearance as now presented. They were taught—and his own experience corroborated it—that the difference between a benign growth and a malignant growth was

that a non-malignant growth sprouted from the *surface*, while the malignant infiltrated the *tissues*. How, then, could an infiltrating growth be removed so thoroughly that no recurrence had taken place, whilst the larynx, as at present seen, showed not the least trace of any operation having ever been performed? He did not wish to be misunderstood, and he wished to say distinctly that he did not deny the *possibility* of removing a malignant growth from the larynx by endolaryngeal operation. Quite a number of cases of that sort were now on record. Perhaps some of the older members of the Society might remember a letter which he had written to the *British Medical Journal* on June 4, 1887, in reference to the case of the then German Crown Prince, for the purpose of warning laryngologists against subordinating clinical apprehensions to the report of the microscopical examination. But in that letter he himself had described a case on which involuntarily he had performed a radical intralaryngeal operation. It was the case of an old gentleman, aged seventy-five, who had a suspicious-looking wart on one vocal cord. He had only wished to remove a piece for microscopical examination. However, as every laryngologist of experience knew, intralaryngeal operations were, after all, more or less of a fortuitous character, and by an exceptional piece of luck he found he had removed the *whole* growth. Mr. Shattock made transverse sections through the whole growth and its base, and it in part bore the characters of a typical cornifying epithelioma. The patient in question was now alive, although more than ninety years of age, and about six weeks ago he actually preached at a wedding! There were now, as he had said before, a number of well-authenticated cases on record in which the proceeding had been successful. But he could not understand, in spite of this, how after removing an infiltrating growth from the larynx, particularly of the size of the one shown in Mr. Hovell's drawing, it came about that one could not detect the slightest evidence of its former presence and of its removal. Now, there was no sign whatever in the larynx of Mr. Hovell's patient to show that a large epithelioma had been removed. If he were asked at the present moment in a court of law to state on oath from which vocal cord the growth had been removed, he would have to confess his inability to tell, and he would have to say it looked as if nothing had been removed. So, clinically, he must confess the case beat him altogether. Further, he had seen a good many cases in which there was for some time a considerable arrest in the progress of a malignant growth. But for this to happen for *several years*, during which there was practically no progress observed in the size of the

growth, surely was most unusual. He was not one who did not believe in things for the mere reason that he himself had not seen them; but he found it difficult to understand an arrest of this kind. Again, from a careful examination of Mr. Hovell's own drawing of the growth, it looked to him much more like a large papilloma springing from the anterior commissure of the vocal cords than like a growth, benign or otherwise, springing from one of the vocal cords. If this surmise of his should be correct, then they would have a perfectly natural explanation of the present appearance of the case. He had once himself removed a very large papilloma looking exactly like the growth shown in Mr. Hovell's drawing from the anterior commissure of the vocal cords of a lady aged forty-eight. The specimen was at present in the museum of St. Thomas's Hospital. With regard to the microscopical appearance, he had looked very carefully, but could not see anything in the specimen typical of epithelioma. He willingly admitted that it was an old specimen, and therefore it might not be so characteristic as it originally had been. He had asked Mr. Hovell if he would consent to more pieces being examined by the Morbid Growths Committee. He hoped it would be the general opinion of the Society that such an unusual case should be submitted to this examination. In conclusion, he wished to say that nothing had pleased him more than Mr. Hovell's final observations to the effect that this was an unusual case, and therefore had to be dealt with in an unusual manner. If the man absolutely refused to have the growth removed in the way which was in accord with the progress of modern scientific surgery—*i.e.*, by external operation—then under such circumstances an intralaryngeal operation was permissible; but he strongly hoped that a case of this sort would not be made the starting-point for further intralaryngeal operations in cases of suspected or proved malignancy. These remarks were analogous to those he had made at the last meeting in the discussion of the value of injections of iodine or iron in cases of goitre. At a time when one had not a better, such methods were both valuable and permissible, but the operator should keep pace with the progress of surgery; and so he was particularly delighted to hear Mr. Hovell say that under normal circumstances he would recommend the extra-laryngeal operation. With this sentiment he entirely agreed.

The PRESIDENT, in commenting upon this interesting case, thought Sir Felix Semon's proposal of re-examination of the tumour by the Morbid Growths Committee was a valuable one, and ascertained from the meeting that it would be its wish to adopt

it. He said the larynx at the present moment showed so little change that it was difficult to imagine that any malignant growth had been removed.

Mr. VINRACE wished to ask Mr. Hovell whether from first to last he had observed any lymphatic enlargement in connection with this growth?

Mr. MARK HOVELL, in reply, said he had not troubled the Society with the full notes of the case, and therefore had not mentioned the attachments of the growth at the time of the first and second operations. At the first operation the growth was attached to the inner border and under surface of the left vocal cord along its whole length. At the second operation the growth was much tougher, and it had a much larger base, being attached to the whole length of the under and upper surface and inner edge of the left vocal cord, and to the left ventricular band. As regards the portions of the growth which he exhibited, he should be very happy for the Morbid Growths Committee to have a portion of each for further examination. He reminded the meeting that Mr. Eve, who had made his own sections, had definitely stated that the growth was an epithelioma. With regard to the mobility of the left vocal cord, the movement was impaired after the first operation, and had remained so since. In reply to Mr. Vinrace, he did not recollect any lymphatics being enlarged.

Female, aged Fifteen, with Absorption of the Cartilaginous Septum due to Pressure from Nasal Polypi. Shown by Dr. FREDERICK SPICER.

The patient came under observation some months ago with both nostrils completely obstructed with polypi, on the removal of which the cartilaginous septum was found to have been absorbed, and the nose disfigured, but there was no perforation.

The case was shown in order to obtain the opinion of others as to its causation. Mr. Spicer ventured to describe it as above, firstly, because he believed the usually recognised sources from which this trouble arises had been eliminated; secondly, on account of the history; and thirdly, because of the totally blocked condition of the nose when first seen.

There was no family history of syphilis, and none of scrofula; nor was there a history of any injury.

The first indication of anything wrong was the appearance four years ago of what she called a "pimple" upon the bridge of the nose, from which matter came; this was accompanied by a dis-

charge of pus from the nostrils, and was of sufficient import to require the assistance of a doctor. It only lasted a few days.

The PRESIDENT understood that this case had been brought forward with a view to eliciting an opinion as to whether the absorption was really due to pressure from the nasal polypi. It was evidently a case of nasal polypus with disease of the ethmoidal, and possibly of other, sinuses. He should hardly say that absorption of the cartilaginous septum was due to pressure, but more likely to some abscess in the septum, and he would like to ask Dr. Spicer whether he had observed at any time in this case an abscess in this position.

Dr. FITZGERALD POWELL had seen a case very similar to Dr. Spicer's, in which there had been an abscess of the septum, which pointed, and was opened, at the anterior margin of the septum. The cartilage had entirely fallen away from the nasal bone. There was considerable thickening or broadening of the latter, the result of ethmoiditis. The exciting cause was said to be traumatism. The case was improving, and if possible, and agreeable, he would show the patient at a future meeting as an interesting comparison with the present case.

Mr. NOURSE thought that an interesting point in this case was the actual cause of the falling in of the nose; was it due to the absorption of the septal cartilage or to some further injury? He recollected a case he saw at the hospital a short time ago, where the only remaining vestige of the division between the two nostrils was the little columella, the septum, bony and cartilaginous, having entirely disappeared, and yet the nose was perfectly straight and without deformity externally. It struck him in this case that possibly, although there had been disappearance of the triangular cartilage, the falling in was due to the absorption of the lateral cartilages, with consequent breaking of the cartilaginous arch.

Dr. SCANES SPICER thought that this was a case of old septal abscess in which the upper lateral cartilages had been destroyed by the suppuration, and that the deformity was characteristic of that condition. In his experience, traumatism and syphilis were the commonest forerunners of these septal abscesses.

Dr. STCLAIR THOMSON thought that Mr. Nourse's explanation might read entirely the other way. He agreed with the President that the broadening was due to starting ethmoiditis, and that the most likely explanation was that the patient had had an abscess of the septum. He had made reference on a previous occasion to a case in which an abscess in the septum—not traumatic—occurred in the course of suppurative disease of the antrum. Of course,

they all knew of cases like that mentioned by Mr. Nourse, where the whole cartilage might be absent and yet there was no falling in. But if the cartilage was absent through an abscess, the consequent contraction of the cicatricial tissue explained the dragging down of the bridge and the deformity of the nose. In this patient, if the nose was grasped from side to side and compared with one's own nose, it became very evident that there was a large defect of the quadrilateral cartilage of the nose.

The PRESIDENT thought Dr. Thomson's explanation the correct one—*i.e.*, the occurrence of contraction of the cicatrix after absorption of the cartilage.

Dr. F. SPICER thanked the various speakers for their remarks. He had nothing more to add. He thought he must agree that the absorption was due to abscess, and considered the abscess was secondary to polypi and ethmoidal trouble.

Case of Unusual Laryngo-pharyngeal Tumour in a Woman, with Microscopic Specimen of Growth removed. Shown by Dr. LAMBERT LACK.

This patient was shown at the last meeting of the Society (see p. 289). The advice given on that occasion had been very carefully considered, but after some hesitation the exhibitor had preferred to perform an external operation, so as to thoroughly examine the growth and its attachments, and to see exactly what steps were necessary to completely extirpate it. An incision some 4 inches long was accordingly made in the anterior triangle of the neck, the sterno-mastoid muscle and the large vessels drawn outwards, and the lateral pharyngeal wall exposed. A linear incision was then made into the pharynx, and the larynx hooked forward so as to thoroughly expose its posterior wall. The growth was soft and nodular, about the size of a pigeon's egg, and attached by a broad base to the mucous membrane over the cricoid cartilage. The mucous membrane was divided all round the growth, and it was then dissected off the larynx. The wound in the mucous membrane of the larynx was closed with a few catgut sutures. The wound in the pharynx was then closed by a row of closely-placed fine sutures uniting the edges of the mucous membrane, and the pharyngeal aponeurosis was also carefully stitched up. A large drainage-tube was inserted into the wound in the neck, and the skin wound closed by silkworm gut sutures. Just before opening the pharynx, a laryngotomy was performed as a precautionary measure, but it was really not needed, and the tube was removed next day. The after-history was uneventful. The patient swallowed easily the day

after the operation, and five days later could take solids more easily than before operation. The wounds, except where the drainage-tube had been, healed by first intention, and the patient was now able to attend the meeting, on the sixteenth day after the operation. Examination with the laryngoscope showed nothing abnormal.

Dr. JOBSON HORNE had made sections of the growth, which he reported to be a mixed-cell sarcoma.

Sir FELIX SEMON suggested that this specimen should be submitted to the Morbid Growths Committee. He did not pretend to be a great histologist, but to him the section of the tumour looked more like a fibroma than a sarcoma, and he would like to have the opinion of the Morbid Growths Committee. Under all circumstances, Dr. Lack must be congratulated on his most successful operation.

Dr. STCLAIR THOMSON asked if Dr. Lack intended publishing the case in full in the "Proceedings"; if not, he would like to have a few particulars as to whether it was necessary to put temporary ligatures round any of the arteries, as to whether he had experienced any difficulty with bleeding or breathing, and as to what steps were necessary in turning round the larynx.

Dr. LAMBERT LACK said there was no difficulty with bleeding, as the large wound exposed the whole field of operation to view. Consequently there was no necessity to put temporary ligatures round any of the large vessels. Such a proceeding was only necessary when operating in the pharynx through the mouth, where it would be impossible to pick up any large vessel which might be cut.

The PRESIDENT having obtained from the Society an expression of its desire that a specimen of the growth should be submitted to the Morbid Growths Committee, Dr. Lack said he should be very pleased to supply a portion of the growth for examination.

Specimen of Bony Occlusion of One Nostril. Shown by Dr. LAMBERT LACK.

The specimen showed a complete occlusion of one nostril at about its centre by a bony septum. The nose was otherwise normal. The specimen was obtained whilst dissecting, and no history was obtainable.

Specimen of Multiple Papilloma of the Larynx. Shown by Mr. H. W. CARSON.

The specimen was removed post-mortem from a female child aged two and a half years, who had died suddenly of asphyxia. There was a history of orthopnoea and dysphonia from birth. The specimen showed well-marked papillomatous growths in the region

of the vocal cords, and a subglottic extension on the anterior wall. There was some œdema in the arytenoid region.

Mr. CARSON wished to ascertain the views of members of the Society on the question of prognosis, more especially as regards recurrence after thyrotomy.

The PRESIDENT said this subject had been under discussion at the Society on previous occasions. They knew that recurrence often did take place. There was the celebrated case in which thyrotomy was performed seventeen times.

Case of Pachydermia Laryngis. Shown by Mr. CHARLES A. PARKER.

This patient had been shown to the Society about two years ago, when it was thought by some to be of a tuberculous nature. Since then the chest had been frequently auscultated, and the sputum examined from time to time, but no evidences of tubercle had been discovered. The local condition was practically unchanged, in spite of various methods of treatment, both at Mr. Parker's hands and at the hands of others, for the patient had sought relief at other hospitals. Mr. Parker would be glad to know if anything further could be done for the patient.

The PRESIDENT said he understood that the condition had existed for three or four years without much improvement.

Dr. JOHNSON HORNE considered the condition was typical of pachydermia laryngis verrucosa, and agreed with Mr. Parker that tuberculosis was not a factor in its causation. Dr. Horne was not in favour of any local treatment of a surgical nature.

Mr. DE SANTI was of opinion that in this case the line of treatment now should be to leave the man quite alone.

Mr. PARKER, in reply, said he showed the case chiefly because on the former occasion it was thought by some members to be tubercular, and he was then asked to bring it forward again. He did not think there had ever been any evidence of tubercular disease. For the last nine months no treatment had been attempted.

A Case of Tumour of the Base of the Tongue in a Young Female. Shown by Dr. DUNDAS GRANT.

This case was shown with the object of gaining from the members of the Society opinions as regards both diagnosis and treatment.

Mr. DE SANTI considered this case to be one of extensive sarcoma of the base of the tongue. The feel of the tumour, its irregular surface, the absence of ulceration, the age of the patient, and the

history, all pointed strongly to its malignant nature. Moreover, a large piece of the growth had been removed a year ago (unfortunately, he understood this piece had been lost, and therefore not submitted to microscopic examination), and had been followed by a rapid and considerable extension of the tumour. The patient, he noticed, had enlargement of the submaxillary glands, and this was far from uncommon in sarcomata of this neighbourhood. A piece of the growth should be removed, and submitted to a skilled pathologist for microscopic examination, and the case dealt with surgically.

Dr. LAMBERT LACK had under his care at the present time a young girl, aged nineteen, presenting some features very much like this case. The tumour was a smooth one, with large vessels coursing over it, and he was under the impression that the growth was a thyroid tumour. He would not, however, like to give that diagnosis in the present case, unless some of the ulceration seen was due to the removal of pieces by Dr. Grant.

The PRESIDENT said with regard to thyroid tumours at the base of the tongue, he had had one case which he had shown to the Society, but this case presented a different appearance. It was more irregular, and more like a malignant growth.

Dr. FITZGERALD POWELL said that the tumour looked like a carcinoma to him, though the woman's age was against its being so; anyhow, a portion should be removed and examined microscopically before anything further was done.

A Case of Ulceration of the Tip of the Tongue in a Man aged Fifty-two. For Diagnosis. Shown by Mr. ATWOOD THORNE.

The patient had complained of some pain for the last year. Mr. Thorne only saw the patient ten days ago, and he then at once put him on 10 grains of iodide of potassium three times a day. There was, if anything, a slight improvement. He asked whether it was epithelioma, syphilis, or tubercle. The tongue was slightly fixed.

The PRESIDENT advised that the iodide of potassium be pushed.

Mr. MARK HOVELL suggested that a piece should be removed and submitted to the microscope.

Dr. STCLAIR THOMSON said syphilitic disease was certain, and malignant possible. In all cases where there was any doubt it was the rule to treat the case on antisyphilitic lines. He had once had a patient who was condemned to have his tongue removed by a leading authority on syphilis. That patient was afterwards shown as having been cured of cancer by Mattei's remedies. Mr. Thorne

would be well advised to take no further measures until inunctions of mercury had been given a good month's trial.

Mr. DE SANTI considered this case to be epitheliomatous rather than syphilitic. There was marked induration at the base of the ulcer; the ulcer itself was raised and warty, not depressed and punched out, and it rubbed distinctly over the lower incisor teeth. There was a little limitation of movement, and some slight fulness in the submaxillary region. It was an uncommon situation for a gumma, but not so uncommon for epithelioma.

Dr. LAMBERT LACK said that Dr. Thomson had exactly stated his views when he said it was certainly syphilis and quite likely epithelioma, but he disagreed entirely with his suggestions as to the course to be pursued. Dr. Lack thought it was very wrong to put a case of suspected epithelioma in such an accessible region on a course of iodide of potassium, and more especially to give him a month's course of treatment by mercurial inunction, when the diagnosis could be immediately made by removing a small piece of growth for microscopical examination. Should the case be malignant, the danger of such a long delay was obvious.

Mr. VINRACE wished to ask whether Mr. Thorne had noticed any fixation in the tongue. He thought the patient had considerable difficulty in putting it out, and its movement was impaired. He asked if there were any infiltrations, other than those of a malignant nature, which impaired the movements of the tongue.

Mr. THORNE, in reply, said that he would remove a small portion for examination, and would order mercurial inunctions, and hoped to report on the case at a future meeting.

PROCEEDINGS OF THE BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

General Meeting on Friday, March 8, 1901.

Mr. MAYO COLLIER, *President, in the Chair.*

THE PRESIDENT read the notes of a case of severe orbital and semifrontal pain due to nasal disease. The patient, a young lady residing in India, had suffered from periodic attacks of severe orbital pain on the right side for many years. The onset was always sudden, commencing in the ball of the eye and extending to the deep temporal region and upper frontal area. The pain was of a throbbing character, and increased by any movements. The attack usually lasted from twelve to thirty-six hours and subsided

quite suddenly. There was no sickness, or deafness, or abnormal nervous symptoms. The general health and condition was otherwise good, except for a chronic nasal catarrh and tendency to catch colds. On being consulted as to the possible nasal origin of the trouble, Mr. Collier found a very large turbinal body on the same side, so large as to embed itself in the septum and push it over to the opposite cavity; the left nasal cavity was consequently nearly obliterated. Under cocaine the turbinal body became greatly decreased. The galvano-cautery was applied to the prominent part of this turbinal enlargement, with the result that the patient was quite free from headaches for a period of six months. Mr. Collier attributed the pain to pressure on the nasal nerve and implication of the ophthalmic ganglion from its connection with that nerve.

Case of Nose-straightening. Shown by Dr. STOKER.

The PRESIDENT congratulated Dr. Stoker on the result of his case of nose-straightening. It was an axiom in nasal surgery never to fix or leave in a splint, tube, tampon, or other foreign body if it could be prevented. Personally, the President seldom or never attempted to straighten the septum; the results were most unsatisfactory. It was better to remove the angles by a clean cut with knife, chisel, or saw than to attempt to straighten out the bend. He (the President) never used even a plug of cotton-wool after removing spurs, ridges, or prominences on the septum; the convalescence and healing were delayed by so doing.

A Case of Congenital Syphilis affecting the Upper Respiratory Tract. Shown by Mr. NOURSE.

When this patient, a youth aged nineteen, came recently under observation there was evidence of an active inflammatory process going on in the upper part of the pharynx and in the naso-pharynx, together with ulceration, which had attacked the right side of the fauces and extended up into the naso-pharynx on that side. On the left side were scars. He merely complained of dryness and discomfort in the throat for the previous fortnight, which he attributed to cold. The voice was very hoarse, and he had some cough, which was worse at night. The left side of the nose was roomy; there was a synechia between the inferior turbinal and the septum, concealed by a red nodular growth. In the larynx the epiglottis was partially destroyed and the remains swollen and red, the arytenoids red and thickened, and the cords ulcerated.

He had been taking 10 grains of potass. iodid. with liq. hydrarg. perchlor. for five weeks. The faucial ulceration had healed, leaving

many scars, and a perforation in the right anterior pillar, although the uvula and the pharynx were still red and œdematous.

An inquiry into his history elicited the facts that his father and mother, aged sixty and fifty-eight, were alive and well. He had five brothers, all alive. On the other hand, his right central incisor was distinctly notched, and there were scars about the mouth and nose. There was no history of any venereal disorder.

Mr. BARK read the following notes on *Cysts in the Glosso-epiglottic Fossa*.

This was the case of a man, aged thirty, who consulted me on March 3, 1900. He had been troubled for four years with the following symptoms: excessive secretion of saliva and constant desire to swallow, which produced the sensation of a lump at the root of the tongue. His voice had never been affected, and his general health and family history were good.

The laryngoscopic image showed in the pre-epiglottic fossa three yellowish-white globular tumours with vascular walls, one the size of a small grape to the right of the middle glosso-epiglottic ligament, another, much smaller, near the ligament, and a third, about the size of a pea, to the left of the ligament. They were soft and yielding to the probe. They were excised by cutting forceps.

As far as I can ascertain, three other cases have been recorded prior to this. The first was a cyst of the glosso-epiglottic fold, reported by Clifford Beale to the Laryngological Society of London, March 11, 1896; the patient felt something at the back of the tongue during swallowing, and had slightly altered voice. The second case was reported to the same society by Dundas Grant and R. Lake, December 9, 1896. In this patient the symptoms were rather formidable—viz., recurring attacks for four years of pain in the throat, with absolute loss of voice, loss of taste, and dysphagia. The third was reported as a case of cyst of glosso-epiglottic fold in the *Nord Médical* by Jousset, October, 1896, and complained of hoarseness and dyspnoea. Excision of the cysts relieved the symptoms in all these cases.

Mr. Bark drew attention to the varying nature of the symptoms produced in the cases reported. In Grant and Lake's and also in Jousset's the symptoms were serious and alarming; while in his own case—and which, by the way, was the only one in which the growths were multiple—the symptoms were only such as were met with in cases of chronic catarrhal pharyngitis in dyspeptics, and also in some cases of enlarged lingual tonsil.

Mr. BARK showed a *Case of Epithelioma of the Right Vocal Cord* four years after operation.

This was a man, aged forty-five years, whose right vocal cord, ventricular band, and arytenoid cartilage Mr. Bark removed by laryngo-fissure on March 21, 1897. He made an uneventful recovery, and has enjoyed good health and fair-speaking voice ever since. The pathological report by Mr. Newbolt showed the growth to be epithelioma. A micro-photograph of the section was exhibited. The laryngoscopic image revealed a firm, healthy cicatricial band, taking the place of the removed cord, and there was no sign of recurrence.

Mr. LENNOX BROWNE, in congratulating Mr. Bark on his success, said that the Association ought to be particularly indebted to him, since the exhibition of a living patient after such a long interval of time would do much more to encourage operations of this nature than the mere relation of cases or collation of statistics, however numerous and apparently conclusive. Mr. Browne was happy to report five cases in his own practice in which this same operation had been performed, all the subjects of which were living after eight, six, four, and three years respectively. But he held to the conviction that cases which were too advanced for its adoption would offer so little hope of comfortable extension of life as not to justify more radical procedure.

Mr. COLLIER congratulated Mr. Bark on the excellent result of his operation. The obvious surgical rules as applied to cancer in other parts should be applied to the removal of cancer in the upper respiratory tract. A free and complete removal of the affected part was followed in Mr. Bark's cases by freedom from recurrence after four years. The larynx was singularly well adapted anatomically for the removal of malignant growths, the thyroid cartilages limiting the extension to and infection of extra-laryngeal parts.

Case of Pharyngeal Growth. Shown for Dr. ORWIN by Dr. P. H. ABERCROMBIE.

W. H. B——, aged thirty-seven years, a carman, came to hospital on Wednesday, February 27 last, and was seen by Dr. Holloway and myself in the absence of Dr. Orwin. He complained of a "lump" in his throat, which had been there to his knowledge for about five or six weeks.

Inspection of the throat at once revealed a large rounded swelling, in appearance not unlike a very much hypertrophied tonsil, and whose attachment from before backwards extended from

the right side of the pharynx, just behind the posterior faucial pillar, to beyond the middle line of the posterior pharyngeal wall. The upper limit of the growth was hidden by the soft palate, while the tongue concealed its inferior border. To the touch it felt very firm, and it was movable to a considerable extent. The finger could reach to the upper and lower limits of the growth. There was no marked lymphatic glandular enlargement. The only symptom complained of was the "lump in the throat"; there was no pain, no dysphagia, and no respiratory trouble. The speech was affected, being somewhat "thick." During the last three months patient thinks he has lost flesh.

The family history is good. Both his father and mother are alive and well, aged about sixty. He has five brothers and three sisters living, and in good health. Four paternal uncles of the patient attained the age of eighty years. There is no history of any malignant or other tumour or growth in his family so far as he is aware, nor of any tuberculous affection. He denies ever having had any venereal disease.

Dr. Mackintosh had made a coloured drawing of the growth, which was exhibited along with the patient.

Mr. LENNOX BROWNE thought that the growth might be a fibroma, but from the rapidity of development was of opinion that it was some form of sarcoma, and was more or less encapsuled. He considered that an attempt at removal should be made without delay with a preliminary tracheotomy and introduction of a Hahn's tampon cannula.

Mr. W. H. KELSON said he had seen two similar cases, and had assisted at the removal of the growths. In these the soft palate was split to facilitate removal, and the tumour removed by means of snare, finger, and scissors. Both did well. He thought probably, on the whole, this growth was not sarcomatous.

Dr. STOKER showed a *Case of Lupus of the Nose*.

Notes on a *Case of Epilepsy and Aural Disease*.

The PRESIDENT read the further notes of the case as described at the last meeting. He had removed the stapes with most of the drumhead on the side not affected by the exostosis, with the result that the fits had lessened from fourteen per week to one slight one. The hearing had improved and the noises lessened. Subsequently the drumhead was removed of the other side, with a still further improvement in the condition of the patient and an improvement in the hearing.

THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Meeting held at Edinburgh on Saturday, May 11, in the Hall of the Royal College of Physicians of Edinburgh.

DR. BARR (*Glasgow*), *Vice-President, in the Chair.*

DISCUSSION ON

THE OPENING AND DRAINING OF CEREBRAL AND CEREBELLAR ABSCESSSES ARISING FROM MIDDLE-EAR SUPURATION.

Reported in abstract by DR. DUNDAS GRANT.

MR. BALLANCE commenced with some general considerations with regard to the liquid texture of the brain, the inextensible nature of its bony capsule, the vital importance of some of its parts, and its inaccessibility to direct physical examination. He pointed out that it was impossible to tell beforehand the size or the degree of acuteness of the abscess, whether it was circumscribed or diffuse. Difficulties arose from the fact that an abscess in the brain might be perfectly latent so far as symptoms were concerned, and this was especially true when the abscess was encapsuled. Even when not encapsuled the symptoms might be extremely slight. Again, with slight symptoms, there might be an abscess which was not encapsuled, but which tended to extend, and might be of long standing, as in one case of apparently eight months' duration in which no capsule was found. An acute and a chronic abscess may exist together.

The treatment depended on general surgical principles, the rule being that the pus must be evacuated and the cavity thoroughly drained, the abscess, if encapsuled, being enucleated; in most cases, however, there was no capsule. In the absence of a capsule, free incision and drainage were obviously called for; but difficulties arose owing to the brain substance flowing towards the surface, so as to occlude the opening, and shut off the rest of the cavity.

In regard to the details of the operation, the first point was to remove the local source of infection; it was in particular necessary to thoroughly sterilize the skin of the patient's head by shaving, cleansing with ethereal soap, then with sterilized water, then turpentine, and, lastly, ether. If the operation was not immediately to be carried out, the part was to be covered with a dressing moistened with glycerine containing 1 in 1,000 of corrosive sublimate. The anæsthetic was to be very cautiously administered in view of the tendency to cessation of respiration in cases of cere-

bellar abscess, which might call for artificial respiration being carried out during the performance of the operation. No morphia or strychnia was desirable. The soft incision should be such as to make a flap with its base downwards, and the bone opening was to be as free as possible. A trephine of $\frac{5}{8}$ inch in diameter was recommended, it being placed for the temporo-sphenoidal region $\frac{7}{8}$ inch above the supra-meatal spine, the bone afterwards being cut away still further, so as to make a parallelogram of an inch and three-quarters in the antero-posterior and one inch in the vertical measurement; this permitted not merely of examining the lower part of the temporo-sphenoidal lobe, but also the deeper parts of the petrous bone. For cerebellar abscesses the trephine was applied below Reed's base line and exactly behind the posterior border of the mastoid process; it could be enlarged downwards and backwards till it measured an inch and a quarter by one inch, and the practical point was mentioned that it was easier to examine the bone before the dura mater was opened. The incision of the dura mater was to be so carried out as to form a flap with the base upwards; a small opening was made with a knife, and the scissors were then employed to enlarge it, care being taken to avoid cutting large bloodvessels.

The discovery and incision of the abscess was in some cases very easy at this stage, as dilatation might reveal the presence of a subcortical abscess; failing this, incision by means of a long narrow knife was to be preferred to puncturing with any form of pus-seeker or trocar. Cases were narrated in which the trocar missed the abscess, or passed quite through it without emptying it, or had failed to puncture it through pushing the capsule before it. The use of the knife for this purpose was recommended by Dupuytren, from whom Mr. Ballance quoted some interesting passages. Should the knife fail, then the finger should be introduced through the soft substance of the brain, and in any case it was the only means by which the presence of a second, possibly oyster-shaped, abscess could be detected. As an illustrative case, Mr. Ballance narrated the instance of a patient who, after evacuation of a cerebral abscess, appeared to have recovered, but at the end of a week presented renewed symptoms of abscess. These were relieved by the puncture of the ventricles, but death took place, and it was found post-mortem that this result was due to the co-existence of a second flat oyster-shaped abscess. If the abscess did not at once close, it might be irrigated with sterilized normal saline solution by means of two cannulae, one of entrance and the other of exit.

The writer did not approve of tamponing unless there was a very free opening and the overlying portion of the cortex had been completely removed, a process effected, as he stated later in the discussion, by the passage of a suture round the portions to be removed. As a rule, a drainage-tube was to be introduced, and not disturbed, but only shortened. In deeply-placed small abscesses, however, in the anterior part of the cerebellum, a slightly curved trocar and cannula of platinized silver might be introduced, the cannula being furnished with metallic wings at its outer extremity to keep it from being pushed too far inwards. The point of this trocar was flattened and had a sharp cutting edge, and was likely to perforate any except the most dense capsules. The next step was to make an opening in the flap of the size of the hole in the brain, the original edges of the flap being then stitched down, the part beyond this being dusted with a sterilized antiseptic powder, and a dry sterilized bichloride gauze dressing applied and fixed by a bandage which Mr. Ballance advised should not pass round the patient's forehead.

In the after-treatment great attention should be paid to the regular evacuation of the bowels. In the case of hernia cerebri he advised gentle pressure by means of sterilized antiseptic gauze, the hernia being covered by a layer of gold-leaf. The recurrence of symptoms might indicate re-accumulation of pus or the formation of a new abscess, abscesses in the cerebellum being not unfrequently multiple. It was to be remembered that symptoms might occur which were strongly suggestive of meningitis or distension of the ventricles without such being present, the patient ultimately recovering in spite of them.

Above all, Mr. Ballance insisted that the great condition for success was personal attention to the carrying out of the after-treatment, without the delegation of the duties to any assistant or deputy.

In the discussion which followed :

Dr. URBAN PRITCHARD referred to Mr. Victor Horsley's recommendation to introduce three drainage-tubes, one for the entrance and two for the outflow of the irrigating fluid.

Dr. McBRIDE described a case which seemed in every respect a typical one of cerebral or cerebellar abscess, but in which at operation neither was found, and after death there were no appearances of any disease to which death could be attributed.

Dr. DUNDAS GRANT quoted a case of cerebellar abscess which was not detected owing to the trocar having failed to penetrate it,

and it was found after death to have a capsule almost of the consistency of the skin of a fig. In another instance, he was confident that an abscess was present, and explored both temporo-sphenoidal lobes and both sides of the cerebellum more than once. After death there was found an abscess in the right frontal lobe. He asked whether syringing was advisable, and he advised the greatest possible caution in its use. He referred to drainage of the temporo-sphenoidal abscess through the tegmen of the tympanum and antrum, but had not found it satisfactory, and thought there was great risk of re-infection from the cavities of the middle ear, their sterilization being extremely difficult. He used by preference a very large drainage-tube, and narrated a case of temporo-sphenoidal abscess on which he had operated. The pus was filled with tubercle bacilli, but the abscess rapidly contracted, and recovery took place. He raised the question as to whether the aurist or the operative surgeon should treat these cases, and though in favour of their being dealt with by the operating surgeon, he insisted on the necessity of the aurist being competent to deal with them, as he was specially liable to be called upon when prompt operation might be the only means of saving life in the absence of the pure surgeon.

Mr. SECKER WALKER was strongly of the opinion that these operations should be carried out by the aural surgeon.

Mr. COTTERILL, of Edinburgh, on the other hand, contended that it was only the pure surgeon who was likely to have the necessary resources in case of the various difficulties and atypical situations which were apt to arise. He insisted that when the cerebellum and temporo-sphenoidal lobe were both being explored, the exploratory wound of the one should be carefully closed up before the other was punctured, for fear of inoculating the sound part. He advocated a large opening and the use of a drainage-tube not smaller than the little finger; he considered digital exploration of the greatest importance. As one of the difficulties likely to arise, he mentioned the cerebellar disturbance of respiration. He looked on hernia cerebri as a safety-valve, not necessarily an expression of sepsis, adding that it should not be compressed or shaved off; but as it indicated the existence of heightened intracranial pressure, its presence was an indication for enlarging the opening in the bones.

Mr. HAROLD STILES objected to the removal of the outer wall of the cerebral abscess as a routine matter, but did not consider hernia cerebri as invariably an indication of sepsis, although if progressively increased he looked upon it as such. In one case of pro-

gressive hernia cerebri there were found several other abscesses at the post-mortem examination.

Dr. LOGAN TURNER quoted Hammerschlag's statistics of 106 cases of exploration through the squama, with 40 recoveries, and of 64 explorations through the tegmen, with 31 recoveries, the figures, therefore, being in favour of the latter.

Mr. NICOL approved of approaching the abscesses through the mastoid opening, and in order to prevent the spilling of pus into the meninges the operation might be performed in two stages, the brain not being opened until a few days later, when presumably the meninges had formed adhesions. Should the symptoms be too urgent to admit of this delay, he rubbed iodoform and boracic acid into the cut edges of the bone, or he stuffed the sides of the cavity with sterilized iodoform gauze rung out in 1 in 20 carbolic solution. He narrated a case in which the trocar had made its way through the abscess, carrying with it just sufficient pus to infect the pyo-arachnoid near the tip of the petrous bone. He considered that irrigation of the abscess, if practised at all, should be postponed till a week after the operation.

Mr. HUGH JONES expressed his approval of evacuation through the tegmen tympani.

Dr. MILLIGAN considered bacteriological examination of the contents of the abscess of considerable value, as it might indicate the use of antitoxic serum. In regard to anæsthetics, he thought that the administration of a full dose of brandy half an hour before operation was the best safeguard against the occurrence of cerebellar respiratory disturbances. He thought that much information might be obtained from a careful exploration of the walls of the cavity formed by the mastoid operation. He was in favour of making a counter-opening through the tegmen through which to insert a second drainage-tube; and he asked for definite indications as to when it was time to operate. He narrated a case in which cerebellar symptoms were present, but settled down so completely that operation was postponed, and death unexpectedly took place with sudden maniacal symptoms. He considered the presence of hernia cerebri an indication for removing more bone.

Dr. BARR, who, in the regrettable absence of the President through illness, occupied the chair, echoed the expressions of approbation with which the members of the Society had listened to the opener's paper; he dwelt upon the advisability of a careful search for fistulæ or erosions on the labyrinthine wall of the mastoid cavity or on the inner part of the posterior surface of the

petrous bone, the lateral sinus being stripped off if necessary for this purpose.

Mr. BALLANCE, in reply, expressed his objections to the making of an opening in the tegmen for evacuation of cerebral abscesses unless there was absolute certainty that such an abscess was present. It was, however, of value after the abscess had already been opened from the outer side; he considered syringing inadvisable except in very chronic diseases, and that the presence of tubercle bacilli indicated chronicity. He described his method of removing the cortex forming the outer wall of an abscess, ligaturing it up by means of a curved needle armed with sterilized silk. He agreed with Mr. Cotterill that when separate explorations were made, the parts explored with negative result should be carefully shut off. He objected to the addition of the adjective "progressive" in his statement that hernia cerebri indicated sepsis, because in the earlier stages cerebral hernia was progressive; he had never seen suppurative meningitis resulting from the opening of a cerebral abscess, and he believed it was to be avoided by making the orifice in the bone very large and packing round it with iodoform gauze similar, in a smaller way, to what was done in the case of abdominal section. He did not think these operations need be exclusively relegated to the general surgeon; he had seen them well performed by the aural surgeon. In regard to the time at which an operation should be performed, he considered that as soon as symptoms indicated extension beyond the temporal bone, operation should be carried out without delay.

SOCIETY OF LARYNGOLOGY, OTOTOLOGY, AND RHINOLOGY OF PARIS.

Meeting, February 8, 1901.

THE Society met at 10 a.m. at the Clinic of M. CASTEX, at the Faculty of Medicine.

M. CASTEX, aided by his assistants, MM. COLLINOT and RABÉ, showed several interesting cases for examination and diagnosis, namely:

1. A patient operated upon for epithelioma of the left vocal cord. A partial laryngectomy, involving exclusively the soft parts, had been done three years before. No recurrence. Two hours after the operation a serious hæmorrhage occurred into the trachea.

M. Castex met this by insufflations of air by the tube, which had the effect of expelling the blood from the much-obstructed air-passages.

2. A pianoforte professor suffering from labyrinthine sclerosis, who had only lost the faculty of correctly appreciating high-pitched sounds.

3. Lupus of the larynx in a young girl. There were no lesions of lupus in the neighbourhood. The epiglottis was very thinned and shrunk; the vocal cords were granular and red.

4. A case of leprosy of the nasal fossæ and soft palate in a sailor who had passed some time in the South American ports.

5. A permanent abductor paralysis of the right cord in a young girl, whose voice was otherwise very good. It was most likely due to long-standing compression of the recurrent by some peritracheal gland.

6. Several extrinsic epitheliomata of the larynx, a case of labyrinthine vertigo unrelieved by quinine, and several other patients of less interest.

M. Luc showed a woman, aged twenty-nine years, twelve days after operation for mucocoele of the left frontal and maxillary sinuses. The frontal mucocoele had lasted seven years; the maxillary mucocoele, two years. There were frontal pains, but no tenderness on pressure. No rhinoscopic signs. Transillumination showed opacity on the left side of the forehead and of the left crescent beneath the eye. The left eye was pushed down and out. The maxillary swelling was elastic.

Diagnosis was made before operation.

After anæsthetizing with chloroform, the two sinuses were operated upon at the same sitting, by the Ogston-Luc and Caldwell-Luc methods.

The frontal sinus, whose anterior wall was reduced to a thin bony shell, was found filled with a slightly viscid, lemon-coloured fluid.

At the end of the frontal operation, the eye was returned to its normal position.

The anterior wall of the maxillary sinus was converted into a kind of fibro-cartilaginous areolar tissue. This sinus did not contain any more pus or granulations than did the frontal one, but simply a little yellow, viscous fluid.

It could not be determined whether the natural orifice of this sinus was obstructed, whereas the fronto-nasal canal was found to be obliterated, and had to be re-established by means of a curette.

The nasal wall of the maxillary sinus was not bulged into the nasal fossa.

Immediate union of the frontal and buccal wounds occurred after the two sinuses had been freely opened into the nasal fossa.

Meeting, March 8, 1901.

M. CASTEX, *Vice-President, in the Chair.*

M. CASTEX, called upon for the first time to preside at the meetings, in the absence of the President, M. Bonnier, who was ill, thanked his colleagues for the honour which they had conferred upon him by making him Vice-President for 1901.

M. MAHU read a paper on a simple method of correcting deviations of the nasal septum. This paper, which is reported fully in the *Archives Internationales de Laryngologie*, etc., for March-April, 1901, describes an operation which is essentially as follows:

An isosceles triangle is cut with a bistoury in the cartilage on the convex side of the deviation, with its base parallel to the floor of the nasal fossa, its apex being at the highest point of the deviation. The basal incision is prolonged forwards and backwards to a length equal to the base of the triangle. The triangle thus formed is raised, the nasal fossa is dilated, and the lips of the triangular wound approximated by tamponing. The operation is performed under cocain anæsthesia.

In the discussion which followed, M. RUULT said that the operation was an improvement of a much older method—that known as the method of Fletcher Ingals, of Chicago, introduced in 1883. It was superior because it made a much larger opening. Ingals dissected up two mucous flaps before cutting the cartilage.

M. LUBET-BARON said that, while all would applaud the operative dexterity of M. Mahu, he was greatly against his opinion that operation for deviations was difficult and required general anæsthesia. He thought it a very simple and very painless one. Perforation of the septum was not of any importance.

M. CASTEX concurred in the opinions of the two last speakers. As far as he was concerned, he operated on septal deviations with a mallet and scissors, with which he took off the most projecting part.

M. SARREMONE was of the opinion of M. Mahu as to the feeble adherence of the perichondrium to the mucous membrane of the concave side of the septum.

M. MAHU replied that he did not think it was any inconvenience to allow a perforation of the septum to remain.

M. VIOLLET read a paper on "Submucous Injections of Chloride of Zinc in the Treatment of Inflammations of the Inferior Turbinals."

The following papers were also read :

"Arterial Hæmorrhage in the Course of a Phlegmonous Quinsy," by M. VEILLARD.

"Oxygenated Boracic Water," by MM. RUULT and LÉPINOIS.

"On Certain Nasal Affections suitable for the Aërothermic Treatment," by M. LICHTWITZ.

MACLEOD YEARSLEY.

Abstracts.

MOUTH, Etc.

Cornil and Chaput.—*Glandular Tumour of the Palate.* "La Presse Méd.," November 10, 1900.

At a meeting of the Société Anatomique the authors showed a tumour taken from the palate of a man aged fifty, which had grown slowly during five years without causing pain or hæmorrhage. It was situated in the middle line, about 5 or 6 c.m. from the dental arch. It grew from the deeper layers of the palate, but was removed without producing perforation.

On microscopic examination it was found to be an adeno-myxoma, with a structure closely resembling that of "cylindroma" of the parotid.

Arthur J. Hutchison.

Lafarelle.—*Hard Chancre of the Tonsil.* "Revue Hebdom. de Laryng., d'Otol., et de Rhinol.," November 17, 1900.

A woman, aged sixty-three, was suddenly attacked with acute pain in the right side of the throat, accompanied by fever and headache. Next day there was considerable painful swelling of the glands in the right side of the neck. She had much pain on swallowing, lost her appetite, lost flesh, became pale and very weak. This condition had lasted for a month and a half when patient came under observation.

The right tonsil and faucial pillars were the seats of a diffuse infiltration, and were brilliant red. The tonsil was not ulcerated at any point; it was of a "remarkable wooden hardness." The glands on the right side of the neck were engorged, hard, mobile, painless, and of small size, except one, viz., that at the top of the chain. Those on the left side of the neck were also hard, movable, and painless. The diagnosis presented considerable difficulties. The sudden onset suggested an acute tonsillitis, but this was excluded by the long stationary condition of the case. Cancer does not commence suddenly, and the isolated,

movable glands in the neck seemed also to exclude it. Lymphadenoma was also excluded by the condition of the other glands, the spleen, etc. The wooden hardness of the tonsil, the abrupt onset of the symptoms, the condition of the glands in the neck, one being large and the rest all hard and small, suggested hard chancre of the tonsil, the primary ulcer having disappeared. This diagnosis was confirmed by the appearance of a roseolous eruption on the chest, and by the results of anti-syphilitic treatment. The infection had probably been conveyed from a syphilitic infant, by means of the teat of its feeding-bottle, which the patient had one day taken in her mouth to soften.

Arthur J. Hutchison.

Surmont.—*True and False Aphthæ.* "L'Echo Méd. du Nord," November 4, 1900.

The term "aphthæ" used to be loosely applied to any condition of excoriation, or ulceration, or of false membrane in the mouth; in more recent literature the term is applied to vesiculo-ulcerative conditions of the mouth. The author wishes to still further restrict the use of the word. He divides the vesiculo-ulcerative diseases of the mouth into (1) herpetiform stomatitis, (2) recurrent herpes of the mouth, (3) zona of the mouth, (4) true aphthæ. The essential anatomical lesion common to these conditions consists of a more or less inflamed basis on which vesicles, discrete or confluent and varying in size, appear. The vesicles rupture and give rise to more or less superficial excoriations or ulcerations. In a long paper the author discusses the etiology, clinical course, pathology, treatment, etc., of each of these.

True "aphthæ" is an infectious disease acquired generally from diseased cows. In these animals the disease frequently affects the udders and teats; the milk is infected in the process of milking, either directly from the diseased teats or else from the hands of the milker. Supervision of the cows and their milkers' hands, or else boiling all milk, should therefore go a long way towards stamping out this disease. Other animals, *e.g.*, swine and sheep, are liable to the disease, but are not likely to transmit it to any extent to human beings.

Arthur J. Hutchison.

NOSE, Etc.

Broeckaert.—*Opacities in the Vitreous Body and Detachment of the Retina, following Ethmoido-frontal Sinusitis.* "Revue Hebdom. de Laryng., d'Otol., et de Rhinol.," January 5, 1901.

A lady, sixty-two years old, consulted the author for marked diminution of vision in the left eye, which came on suddenly. Externally, the eye was normal, but numerous floating opacities were found in the vitreous body. The patient complained of vague pains in the head. General health was good. Treatment with absolute rest, iodides internally and mercurial inunction had no effect, but the loss of vision became steadily more pronounced. On further examination it was found that the left nostril was partly blocked by polypous growths, bathed in pus. Empyema of the left frontal sinus and ethmoidal cells was diagnosed. After partial treatment of this the opacities in the vitreous body diminished to such an extent as to permit of an examination of the fundus oculi. A detachment of the lower half of the

retina was discovered. A radical operation was then performed on the frontal sinus and ethmoidal cells, resulting in a complete cure. Thereafter the vitreous body cleared up completely, and the detachment of the retina remained stationary.

From the history of the case, and from the absence of any other cause for the eye condition, the author concludes that the latter was due to the nasal sinusitis. There was, however, no purulent collection at the back of the orbit, nor any orbital inflammation extending along the perivascular connective tissue to the interior of the eye, therefore the author is inclined to believe that the eye lesions were the results of metastases, though he admits that this theory is not very satisfactory.

Arthur J. Hutchison.

Champeaux, De.—*On the Adenoid Face.* "Archives Internationales de Laryng.," etc., March-April, 1901.

The author remarks that the adenoid face is so well known that stress has been laid upon this type of physiognomy as a characteristic aspect of the disease. He briefly describes the classical adenoid type, which naturally does not always exist in all its purity, and is more or less pronounced, according to the individual. But persons may be the subject of adenoids without possessing the adenoid face, and, similarly, individuals may have the adenoid face without any hypertrophy of the pharyngeal tonsil. Champeaux therefore divides his cases into three groups:

1. Adenoid faces with adenoids.
2. Adenoid faces without adenoids.
3. Adenoids without adenoid faces.

1. In the first group the consequences of the disease show themselves sooner or later; the voice is nasal, the child hears badly, he has ear, nose, laryngeal, and bronchial symptoms, tends to catch cold on the slightest provocation; often has enlarged tonsils superadded. In these cases there can be no doubt of the diagnosis, which the finger introduced behind the soft palate confirms.

2. In the second group the mouth is open, the palatal arch pointed, the teeth badly arranged; the patient snores at night; generally the tonsils are not enlarged; respiration is buccal, and cannot be carried on through the nose. In these patients ear affections readily yield to treatment, and the finger in the post-nasal space finds no adenoids.

3. In the third group the mouth is usually closed, and the patient snores but little; ear symptoms are not common, and hearing is generally fair; but in place thereof laryngo-bronchial symptoms predominate; there is continual cough, especially in the morning; laryngitis and attacks of aphonia or hoarseness are frequent; on depressing the tongue more or less granular-looking masses can be seen on the pharyngeal wall. The finger in the post-nasal space finds adenoids very fairly developed on the posterior wall of the nasopharynx, but the choanæ are free. Sometimes there are nasal symptoms (attacks of sneezing, coryza), but they are intermittent when compared with the laryngo-bronchial attacks, and in no case do they reach the same intensity as do the nasal symptoms in the first and second groups. These patients have enlarged tonsils less often than do those in the first class.

Champeaux discusses the reasons for this condition of things; he remarks that it is admitted that the adenoid type results from a failure in equal development between the upper and lower parts of the face,

and that this explains the presence of the adenoid face in those who have no adenoids. This atrophy of an organ which is not used (the nasal fossæ) perfectly explains the adenoid face in adenoid patients; but how can the absence of the facial type be explained in cases of adenoids?

Champeaux then points out that the existence of the "adenoid face" depends upon whether the adenoids cause nasal obstruction or not; such a type of face may accompany any other form of nasal obstruction, such as hypertrophic rhinitis, deviated septum, or large spurs, and he suggests that the term "adenoid face" be replaced by that of "face of the type of nasal obstruction," or, more simply, "nasal face." This would explain his third group, in which the adenoids do not cause true obstruction to nasal breathing. To further explain this third group he appends to his paper two cuts showing diagrammatically how adenoids may occur with and without obstruction to nasal respiration. Cases are also quoted to bear out his contention.

MacLeod Yearsley.

Coates, George.—*On the Causation and Treatment of Profuse Epistaxis in People beyond Middle Age.* "The Lancet," April 20, 1901.

The author had a series of five cases of profuse epistaxis not caused by a blow or injury, but coming on without any apparent cause in adults aged fifty years and upwards, all of whom he had known and watched for several years both before and after the attack, and in whom he had been able to trace the series of events which caused and followed it. The attacks have been sudden in their onset, and profuse, generally lasting from half an hour to an hour or more, and tending to recur for several days. The cases are briefly as follows:

Case 1.—The patient was a gouty man. He had had a severe attack of epistaxis seventeen years ago, which was finally stopped by plugging the posterior nares in the usual manner. At the same time he developed cardiac disease, *i.e.*, well-marked mitral regurgitation. He died fifteen years later, aged eighty-two years, from bronchitis and pneumonia. There was some chronic nephritis.

Case 2.—The patient was a woman aged fifty-two years. She had had profuse epistaxis seven years ago, which also was finally stopped by plugging the posterior nares. She developed mitral regurgitation at the same time. She is now alive and well.

Case 3.—The patient was a man, aged sixty-eight years. He had epistaxis four years ago. He developed aortic regurgitation at the same time. He was treated with blue pill and a mixture of sulphate of quinine and sulphate of magnesia and rest in bed. Plugging was not necessary.

Case 4.—The patient in this case was a woman, aged sixty-four years, who had suffered for at least ten years from high arterial tension.

Case 5.—The patient was a woman, aged sixty-eight years, who had suffered for several years from high arterial tension, due to arterio-capillary fibrosis and from contracted granular kidney.

With the exception of the patient in Case 1, all the others are now alive. In Case 4 and Case 5, the patients did not develop any valvular lesion. The epistaxis in both of these followed exposure to cold when they were very tired; they both had over-exerted themselves for many days, and then got thoroughly chilled. In both, the epistaxis was cured by administering nitro-glycerine and tincture of strophanthus.

In all these cases the sequence of events which led up to the epistaxis was essentially the same, namely:

(a) Long-continued high arterial pressure. (b) Some sudden cardiac failure. In Cases 1, 2, and 3 the epistaxis arose from the giving way of a valve. In Case 4 and Case 5 it arose from loss of power of the cardiac wall. (c) Over-filling of the whole venous system, the weakened heart not being able sufficiently to empty the engorged veins against the high pressure in the arterial system due to contracted arterioles. (d) Leakage from an over-filled vein. In Cases 1, 2, and 3, in which the patients all had a good amount of muscular strength and vigour, the heart had gone on working against this high pressure until a valve, aortic or mitral, gave way. In Case 4 and Case 5 there was not enough vigour of constitution in the patients for the heart to be sufficiently strong to raise the arterial pressure high enough to cause valvular leakage. In them, however, the same state of venous engorgement was produced in the following manner. They had both over-exerted themselves, and felt very tired for some days, then when exposure to cold constricted their superficial vessels such a sudden increase of work was thrown on the heart that the tired muscle was no longer able to do its work efficiently. Here again the veins became over-filled and epistaxis occurred. Both these last cases were caused by the same spell of cold weather, and various remedies as suggested in the various text-books were tried, with little result. When seeing the patient in Case 4 the thought occurred, Why not try to relax the arteries and strengthen the heart so as to get the veins emptied naturally?

The most scientific and satisfactory treatment of these cases of epistaxis, and by analogy of the other forms of passive venous hæmorrhage, is to empty the over-filled veins. As long as they are enormously distended with blood the hæmorrhage must continue, unless direct mechanical means are used, and if one nostril be plugged the epistaxis is apt to start from the other. If, on the contrary, we can relax the walls of the arteries and help the enfeebled heart to do its work, it will soon empty the over-filled veins. But, as a rule, this cannot be done by giving heart tonics at first. The heart has been doing its utmost; it has only failed because it has been overworked, and giving a tonic is like spurring a jaded horse. We must bear in mind that in this class of cases the immediate treatment must be directed to the capillaries and small arteries, as the real cause of the epistaxis lies there, not in the nose. Nitro-glycerine is quite effective; nitrite of amyl might be more so, but one of the more quickly acting nitrites should be used at first; afterwards one of the more slowly acting, as erythrol tetranitrite, or possibly even thyroid tabloids, might do as well. When the capillaries and arterioles are dilated and pervious, then comes the time for strychnine or strophanthus. Of course, each patient must be considered individually, and there are other ways of keeping down excessive blood-pressure and strengthening a weak heart. In spite of everything, plugging may have to be resorted to in some cases, but in most of them the hæmorrhage can be stopped without resorting to this procedure, which is always most uncomfortable to the patient, and sometimes even dangerous.

Finally, by recognising profuse epistaxis as a symptom of a sudden though mostly temporary heart-failure, there is no danger of commencing valvular disease being overlooked and the patient being considered as one who only requires a little surgical treatment. In

some cases it is possible that the alteration in the circulation causing the epistaxis may also cause cerebral symptoms, but here again the cerebral symptoms are mostly not the cause or the result of the epistaxis, but only the result of the circulatory conditions leading to the epistaxis.

StClair Thomson.

Compaired.—*A Case of Persistent and Repeated Nasal Hæmorrhage.* "Revue Hebdom. de Laryng., d'Otol., et de Rhinol.," December 8, 1900.

A man, twenty-five years old, had been subject to more or less violent bleeding from the left nasal fossa for five years, the first bleeding having occurred shortly after an attack of typhoid fever. From year to year the hæmorrhages had become more and more frequent and profuse. The patient had been treated for anæmia, hæmophilia, and tuberculosis; finally a malignant tumour of the left nasal fossa had been diagnosed.

When seen by Compaired hæmorrhage had been going on for seven days, which could be controlled only by plugging of the posterior and anterior nares; the patient was extremely weak, anæmic, and anxious. Rhinoscopic examination revealed a varicose condition of the internal branch of the sphenopalatine artery, in the usual position on the septum. Thorough cauterization of this stopped the hæmorrhage completely.

Arthur J. Hutchison.

Jousset.—*The Surgery of the Maxillary Antrum.* "Revue Hebdom. de Laryng., d'Otol., et de Rhinol.," December 15, 1900.

The author had to operate twice on the maxillary antra in one patient. At the first operation he performed the Caldwell-Luc operation, omitting, however, the important step of suturing the wound in the canine fossa, but making the patient wear an obturator in each wound instead. At a later date one of the obturators broke, and a piece fell into one of the antra. A second operation was required to find the broken obturator. On this occasion the author adopted the method described by Rouge. In the author's opinion, the Rouge operation is much more difficult to perform than the Luc operation; the bleeding is much more profuse and more troublesome to stop, the section of the nasal septum is not so easy as one might anticipate, and as a result there may be considerable thickening of the septum and other parts near the entrance of the nose, sufficient to interfere materially with nasal respiration. If only the antra are to be operated on, the Rouge operation does not give any easier access to the parts than does the Luc operation, but, on the other hand, if the sphenoidal or the posterior ethmoidal cells are involved the Rouge operation is to be preferred.

Arthur J. Hutchison.

King.—*Twenty-one Cases of Deflection of the Nasal Septum treated by Asch's Operation.* "Revue Hebdom. de Laryng., d'Otol., et de Rhinol.," January 5, 1901.

A short description of twenty-one cases of deflection of the septum, and of the results obtained by Asch's operation is here given. One case was lost sight of, but in all the others the results were good. In a few a small perforation of the cartilage remained. In young children Asch's scissors may be too large, but may be quite satisfactorily replaced by a sharp-pointed bistoury. Also the smallest size of

Mayer's tubes may be too large. Rolls of gauze may be used instead, but it would be much better to have smaller tubes made. Some time before operating on the deflection any spur or ridge on the cartilage should be removed, and hypertrophy of the turbinated bodies reduced. Perforation of the septum may be the result of careless introduction of the Mayer's tubes, a segment of the cartilage being caught and turned back by the tube. All the author's operations were performed under chloroform. At first he had the patient in Rose's position, with the head hanging over the end of the table; but since adopting the use of suprarenal extract he has found the bleeding so minimal that the danger of blood getting into the larynx has practically ceased to exist. Frequent washing of the nose with a weak alkaline antiseptic lotion, especially during the first twenty-four hours after the operation, should be carried out. The tube in the free cavity may be removed permanently after about twenty-four hours; that on the other side may be left *in situ* three or four days. It should then be taken out and the septum examined. If the parts are in good position, the tube should be carefully re-introduced, left in the nose for another eight or ten days, then permanently removed.

Arthur J. Hutchison.

Lichtwitz (Bordeaux).—*On the Aërothermic Treatment of Certain Nasal Affections.* "Annales des Maladies de l'Oreilles," etc., April, 1901.

The author reviews the various methods of treatment which have been applied to certain nasal maladies, such as spasmodic rhinitis, hay fever, nasal hydrorrhea, acute and subacute coryza, and hypertrophic rhinitis, under the groups surgical (cautery, turbinectomy) and medical (douches, fumigations, powders, ointments, etc.). He then proceeds to describe the treatment with hot air, proposed in the last July number of the *Annales* by Lermoyez and Mahu. This treatment consists in the introduction into the nasal cavities of a current of hot dry air at a temperature of from 70° to 90° (Centigrade, we presume). The necessary apparatus is in three parts: (1) A generator of hot air; (2) an air reservoir; (3) a conducting-tube and cannulæ. The advantages of the apparatus which the author describes are as follows: (1) The easy regulation of the pressure of the air, and thus of its temperature, at the exit of the tube; this regulation is obtained by employing a current of an intensity more or less strong. (2) One is at once the producer and user of the air. (3) The price is insignificant. The author has tried this aërothermic method in divers affections of the nasal fossæ, and he concludes from his experience that it ought to be especially employed in three groups of diseases: (1) The affections which are classified under the term "spasmodic rhinitis"; (2) acute and subacute rhinitis, with implication of the sinuses; (3) hypertrophic rhinitis, with obstruction varying from time to time. He has also employed it in certain other affections, such as lupus, obstinate epistaxis, chronic ulcers of the septum, and certain maxillary sinusites, but not in a sufficient number of cases to justify any decided opinion. Cases are described in support of his recommendation. In all of them the applications of hot air have been for three minutes at a sitting. He considers the treatment valuable, occupying a place between the violent and radical methods of a surgical nature and those medical ones which are too mild. It has also the great advantage of being inoffensive and nearly painless.

Macleod Yearsley.

Ruprecht, Max.—*Far-reaching Effects of Nasal Disease.* "Die Medicinische Woche," No. 33, 1900.

The author points out various constitutional effects more or less directly proceeding from localized diseases of the nose. He divides these diseases into two classes:

1. Narrowing of the nasal passages through hypertrophy, new formations, or deviations of the septum.

2. Diseases of the mucous membrane, with retrograde changes, causing widening of the nasal passages.

Under the first heading, the author describes in detail the results of these conditions on the various organs of the body:

1. *Accessory Cavities.*—Infection may be rapidly spread, causing localized accumulations of pus, which in ethmoidal and frontal sinus disease may be followed by meningitis. Kühnt's record of seventeen fatal cases is quoted, and the author states that many cases are overlooked.

2. *Ear.*—The frequency of secondary infection in pathological states of the naso-pharynx, with possible deafness, mastoid disease, and its dangers, are fully entered into.

3. *The Eye.*—The usual route of secondary infection is by way of the tear-duct (Ziem), but the fact that the lymphatics of the nose and eye meet in the pharynx (Winkler) may explain some cases. Winkler's statement that 40 per cent. of children affected with conjunctivitis and phlyctenular keratitis have naso-pharyngeal disease, and Ziem's opinion that trachoma is often caused by a purulent rhinitis, is quoted.

4. *Pharynx and Lungs.*—Mouth-breathing following nasal obstruction, with all its evil results to throat, lungs, and general development, is fully entered into. Secondary infection by way of the tonsils is supported by Grober's experiment on dogs, which showed the direct lymphatic connection between tonsils, throat glands, and upper part of pleura and lung.

5. *Stomach and Intestines.*—Chronic indigestion may be brought on by swallowing post-nasal discharges, affecting the general nutrition. Hernia occasionally occurs through too severe blowing of the nose.

6. *Nervous System.*—The influence of the sense of smell on the general well-being, and the reflex neuroses, asthma, etc., are mentioned. As an example of the second class, the author gives lupus, tuberculosis, and syphilis. As a type, he takes ozæna, the pathology of which he states is unsatisfactory, and points out that as the necrotic changes go on, there is ultimately a condition analogous to that found in mouth-breathers. The inspired air does not receive its proper supply of moisture or heat; dust and bacteria gain access to the pharynx; the bactericidal power of the nasal mucous membrane being destroyed or interfered with, the secondary infections already mentioned are prone to take place.

Anthony McCall.

Walsham, W. J.—*Note on the Treatment of Collapse of the Ala Nasi.* "The Lancet," March 30, 1901.

Collapse of the ala nasi consists in the falling of the external part of the lower lateral cartilage inwards during inspiration. Normally, the lower lateral cartilage is doubled on itself, U-like, the inner part being in contact with the lower end of the septum, whilst the external forms a part of the outer wall of the vestibule. There is an amount of stiffness in the cartilage which keeps the anterior nares patent and the resiliency of the cartilage where the bend occurs is sufficient, after the

two portions of the cartilage have been pressed together, to restore the patency of the anterior nares. In not a few individuals this resiliency is lost. In some of these cases there co-exists a dislocation of the anterior end of the septum from the columella, and this, when present, increases the obstruction to free inspiration.

This collapse of the ala may easily be overlooked by the surgeon unless he is cognisant that such a condition may occur. For when the speculum is introduced and the blades are separated, the collapsed ala at the same time is, of course, carried away from the septum by the external blade of the speculum, and nothing whatever may be discovered on looking into the nasal cavities to account for the patient's trouble. If, now, the speculum is removed and the vestibule is examined by tilting up the tip of the nose with the finger, it will be seen that the outer wall comes in contact with the inner when the patient inspires.

The condition is an exceedingly troublesome one to treat. The author has seen some good done by face massage—that is, massage of the dilator muscles of the ala—but not much. When there is dislocation of the anterior end of the septum, shaving off the projecting portion will also help matters, though it will not completely rid the patient of his trouble. The various rings, semicircles, celluloid expanders, short pieces of drainage-tube, etc., that have been from time to time recommended for the condition, although they may keep the passage expanded whilst *in situ*, and for the time give relief, soon become irksome and irritable and are abandoned. In one case a number of similar contrivances of various material were carefully moulded and shaped to fit the part accurately. But this patient, like the rest, finally threw them aside and resorted again to his own plan of obtaining relief, namely, rolling up a piece of moist cotton-wool into a ball of the size of a small pea, which he poked up the vestibule into the little pit just within the limen at the angle of bending of the lower lateral cartilage. This tiny ball of cotton-wool was just sufficient to prevent the ala from collapsing, and it gave to the author the clue to the method of curing the condition. It struck the author that, if in place of the cotton-wool ball he could transplant there a ball of the patient's own tissue, he should obtain the same end, and this he succeeded in doing in the following way. A strip of mucous membrane, as thick as possible, and about $\frac{3}{16}$ inch in width, was dissected up from the inner wall of the vestibule, leaving the base attached above. The surface of the little pit at the angle of bending of the lower lateral cartilage was next made raw by removing the epithelial layer. The epithelial lining was also removed from the little strip of tissue; the tissue itself was rolled up bandage-wise, and then secured to the raw surface of the pit by a stitch of the finest fishing-gut passed by a needle through the septum into the opposite nostril and back again. When thus fixed the little roll of tissue pressed out the external portion of the lateral cartilage just enough to prevent the ala during inspiration from falling into contact with the septum. It cannot be seen, and produces no deformity, and so far as his experience has gone it is a permanent cure for this troublesome condition. The surface left by rolling up the strip of mucous membrane readily granulates over and causes no inconvenience. Tension in the strip of tissue must, of course, be avoided, and care must be taken that the surfaces of the roll are properly and completely bared, and their vascular supply not interfered with by drawing the stitch too tight. The operation is best done under general anæsthesia, as unless

the tissues are manipulated delicately the blood-supply of the little strip will be injured and necrosis will take place. *StClair Thomson.*

LARYNX.

Ausset.—*Laryngeal Ulcerations following Intubation.* "L'Echo Méd. du Nord," November 11 and December 9, 1900.

At a meeting of the Société Centrale de Méd. du Départ. du Nord, M. Ausset showed the larynx of a child that had died of diphtheria on the ninth day of the disease. The child was rachitic and had enlarged tonsils. A long tube was first introduced, and left in position two days; a short tube was then introduced, and had to be worn during the seven days that the child lived. On post-mortem examination ulceration was found at a point to which the long tube reached.

M. Ausset considered the ulcer due to pressure by the point of the long tube, and concluded that in certain cases of diphtheria in very weakly children—children with adenoids, etc.—tracheotomy was to be preferred to intubation.

Arthur J. Hutchison.

Bernheim.—*Primary Tuberculosis of the Larynx.* "Revue Méd. de la Suisse Romande," October 20, 1900.

This paper is founded on twenty-nine cases which have come under the author's observation in which the bacillary invasion of the larynx preceded that of any other organ. In some cases, indeed, no other organ was affected. The author deals at some length (1) with the question of the existence of primary tuberculosis of the larynx; (2) with its pathogenesis; (3) with its clinical and pathological varieties, giving several illustrative cases; (4) with primary lupus of the larynx; (5) with treatment. The paper is too long to be given in abstract here, but the author's conclusions may be stated briefly:

1. The larynx is frequently—more frequently than is generally believed—the seat of a primary tuberculosis. This fact is demonstrated by the twenty-nine cases, in which no other organ was affected. Similar observations have been reported in large numbers by Gouguenheim, Moure, Hélyar, Dardano, Heinze, and others.

2. Primary tuberculous laryngitis is distinguished by special characteristics from laryngitis of any other kind. At the outset of the affection one sees little milary vesicles in the larynx, which are pathognomonic. Later these unite and form superficial ulcers, which invade nearly the whole organ, thus differing from syphilis. The slow progress and the general nutritive disturbances distinguish primary tuberculous laryngitis from simple inflammatory laryngitis.

3. This milary tuberculous laryngitis may undergo changes and become pachydermatous, papillomatous, or pseudo-polypoid. The tuberculous nature of all these may be easily established by examination of a piece of the tissue, or by inoculation of guinea-pigs. A rapid and harmless means of diagnosis consists in injection of Koch's tuberculin, which gives a pathognomonic local reaction.

4. Primary lupus of the larynx is only a very slowly progressing variety of tuberculous laryngitis.

5. Early diagnosis is of the greatest importance, because in the early stages it is possible to prevent general infection.

6. The true and only effective treatment is that which puts the organism in condition to resist the invasion of the pathogenic microbe.

The great point is not so much to endeavour to destroy the bacillus locally as to enable the patient to live with his enemy without suffering from its attacks. This is readily attained by Brehmer's "triple cure": by air, rest, and over-feeding.

Arthur J. Hutchison.

Brindel.—*Infantile Laryngitis.* "Revue Hebdomadaire de Laryngologie," October 13, 1900.

The author says that there is a form of tuberculosis affecting the larynx of infants and assuming an ulcero-œdematous type. It is always fatal, and death comes on rapidly, this rapidity being determined by age, condition of the lungs, and respiratory embarrassment depending upon the amount of laryngeal stenosis. He believes that tuberculosis may attack the upper air-passages primarily, and that it causes intense dysphagia and early vocal troubles. Such symptoms in children should lead us to suspect this form of laryngeal invasion.

Macleod Yearsley.

Dickerman, E. T.—*Papillomata of the Larynx in Children.* "Journal of the American Medical Association," vol. xxxv., No. 17.

The author considers that papilloma is the neoplasm most frequently found in the larynx of the child. He considers that papillomata frequently undergo spontaneous cure. If dyspnœa is not urgent, removal of the growth should be undertaken by the intra-laryngeal method. Should the dyspnœa be severe tracheotomy should be performed, and subsequently removal of the growth by the intra-laryngeal route. Thyrotomy should only be employed as a last resort. In any case, the patient should wear a tube for six months after the disappearance of all growths.

W. Milligan.

Sebileau, Pierre.—*Sur un Os Copulaire Hyo-thyroidien.* "Annales des Maladies de l'Oreille," etc., April, 1901.

This is the description of a very rare anomaly. It occurred in a young man dissected in the author's laboratory. Attached to the tubercle of the hyoid bone was a bony apophysis about 2 centimetres long. The author enters into a discussion of its comparative anatomy.

Macleod Yearsley.

Variot and Marc' Hadour.—*Stridor in New-born Infants.* "La Presse Méd.," November 7, 1900.

At a meeting of the Société de Pédiatrie the authors reported a case of stridor in an infant. From the birth of the child respiration had been accompanied by a peculiar sound. This was exaggerated when the child was excited, during crying, etc., but diminished when the child was laid face downwards. The child breathed quite well, and took the breast easily; there was no enlargement of the thymus or of the tracheo-bronchial glands. The superior orifice of the larynx instead of being in the shape of a curvilinear triangle was reduced to a simple slit. M. Variot had found the same condition in another infant with stridor. M. Comby had observed a similar case; the stridor disappeared when the child reached the age of two years. M. Guinon had also seen a similar case, but in a second case presenting the same symptoms the cause seemed to be not a peculiar form of larynx, but pressure due to enlarged tracheo-bronchial glands.

Arthur J. Hutchison.

E A R.

Church, B. F.—*Inflammation of the Mastoid Process.* "Pacific Medical Journal," April 19, 1901.

In an article upon this subject the author discusses at some length the anatomy of the temporal bone and the relation of the middle ear to various important structures. With regard to the prognosis of the affection, he considers that it depends upon the presence or absence of infection; thus, that it is usual to find a rapid subsidence in all simple acute inflammatory conditions of the mastoid and of the middle ear, provided no infection has been carried from them. In the exanthemata infection is prone to occur, micro-organisms passing through the Eustachian tube from the naso-pharynx. Probably the various cocci found in the discharges from the ear in such cases are the primary cause of the suppurative inflammation, they having entered the middle ear through the Eustachian tube before its closure. In all severe inflammatory affections of the middle ear closure of the Eustachian tube to a greater or less degree takes place, and this forms Nature's method of preventing infection of the cavity. Any forcible inflation under such circumstances is prone to drive organisms into the middle ear, and hence to cause infection. The author places great stress upon the presence of "dipping" of the postero-superior wall of the meatus in such cases as evidence of deep-seated mastoid disease. In early cases confinement to bed, a brisk cathartic, local blood-letting, or cold applied over the mastoid process are valuable and frequently efficacious. Incisions through a bulging or swollen membrane are also recommended as a means of securing free drainage. The continuous application of cold over the mastoid process is highly spoken of by the author. Should no improvement take place after a forty-eight hours' trial of simple methods, operation should be resorted to at once. In doubtful cases the wiser and safer plan is to operate, as delay may prove exceedingly dangerous.

W. Milligan.

Friedrich, Professor E. P.—*Three Cases of Diabetic Mastoiditis* "Arch. of Otol.," vol. xxix., p. 146.

In the first case, the operation under chloroform revealed extensive caries; it was followed by increase in the excretion of sugar, but recovery ensued. In the second chloroform was also administered; diabetic coma commenced on the third day, and death followed on the fifth. There was simultaneous chronic Bright's disease. In the third an abscess communicating with the mastoid tip was opened under local anæsthesia (ether spray), and recovery took place. The writer attributes the danger to the narcosis, and not to the operation. He advises local anæsthesia when possible, and recommends Naunyn's plan of administering bicarbonate of soda beforehand, as well as regulating the diet.

Dundas Grant.

Muck, Dr. (Rostock).—*Upon the Colour of Living Rhachitic Bone as found during Mastoid Operations in Rhachitic Children.* "Arch. of Otol.," vol. xxix., No. 4.

Two cases are described, the bone on incision being soft, so as to be marked by the knife, and of a light rose colour; it was so soft that it could be readily removed with a sharp spoon. The healing process was rather slow, but otherwise showed nothing unusual. The writer points out how little attention has been paid to this condition.

Dundas Grant.

Schwendt, Dr. A.—*Sharply Circumscribed Sound Defects in the Hearing Fields of Certain Deaf-mutes.* "Arch. of Otol.," vol. xxix., p. 152.

Three cases of deaf-mutism are cited. In the first there was sharply-defined deafness for the tone f^5 . In the second the loss was for tones above f^1 and a^1 . The only consonant he could hear was the guttural r . The third deaf-mute had comparatively good hearing for notes below g^2 , and therefore for an octave more than the second one. She could hear all the consonants except s . To hear speech well, there should be good hearing for the notes between g^1 and g^2 , but in two cases of Bezold's speech was well heard. All the hearing for this octave was extremely defective. Bezold explains this by the fibres of the membrana basilaris vibrating in response to the harmonics.

Dundas Grant.

Wagner, F. (Bale).—*Acuteness of Hearing before and after Radical Operations.* "Arch. of Otol.," vol. xxix., No. 4.

From the examination of a number of cases it was found that the average of hearing for the voice after a radical mastoid operation was about 33 per cent. of the normal. The upper limit of audition was generally unaltered, and the hearing for the higher tones practically normal.

The amount of hearing power present in a case in which operation was proposed might be considered. As a rule, this element is overshadowed by the others, but when other indications are doubtful the preservation of more than 33 per cent. of the normal hearing-power might suggest further trial of non-operative measures.

Dundas Grant.

REVIEW.

The Asphyxial Factor in Anæsthesia, and other Essays. By H. BELLAMY GARDNER, M.R.C.S., L.R.C.P. London: Baillière, Tindall and Cox. Pp. 63. Price 3s. net.

The writer has chosen a somewhat ambitious title for a collection of three or four short papers on various subjects connected with anæsthesia. In the first, from which the book takes its chief title, the various causes which tend to prevent the proper oxygenation of the blood are described; and if repetition of what should be urged in every text-book which describes the administration of an anæsthetic may help towards a more careful watching of the respiratory functions during all states of artificially-produced unconsciousness, the writer's efforts will not have been in vain.

In the second part hints are given as to the administration of the anæsthetic agents which are now most commonly employed; but we think these short chapters are hardly worthy of description as essays. Mr. Gardner has followed the teaching of Dr. Hewett very closely in the use of gas and oxygen. We agree with him that it is unsuitable for prolonged inhalation in the case of young children; but would go further, and think that its use in operations such as he describes lasting up to twenty minutes or more will be still further restricted.

In the last paper suggestions are given as to the best method of lifting a patient from bed on to the operating-table and back again.

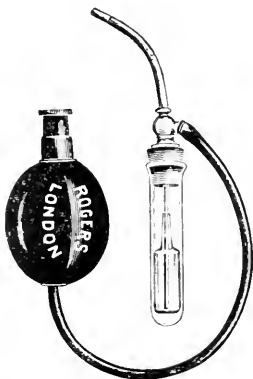
NEW PREPARATION.

MR. FRANK A. ROGERS, of 327, Oxford Street, London, has forwarded to us samples of his new preparation, "Hypodermules" of suprarenal gland solution. These are small cylindrical glass capsules, as shown in the accompanying figure, each containing a distinct quantity of a standard solution of suprarenal gland sterilized in the most thorough manner, which will retain its properties unimpaired for lengthened periods.



This sterilized solution, by means of an ingeniously contrived miniature spray apparatus, can be directed in the form of a very fine cloud upon the part desired direct from the hypodermule itself without contact with external or decomposing influences, as shown in the accompanying sketch.

The valuable styptic properties of supra-renal solution have recently brought it very prominently to the front, but owing to the rapidity with which solutions freshly prepared decompose on contact with the air, its usefulness has to a great extent been curtailed.



Attempts to overcome this tendency to decomposition by the addition of one or other antiseptic have been made with varying success, but the addition of a preservative is not in all cases desirable.

It is acknowledged that suprarenal gland substance acts in its most perfect manner when presented in the form of a solution freshly made, without the addition of any extraneous substance. "Hypodermules" of suprarenal gland solution are, therefore, offered as a means of overcoming an acknowledged drawback to the more extended use of a most valuable remedy, and will probably be found an efficient method of using suprarenal gland solution in hay fever, and other forms of nasal catarrh, as well as in nasal operations. Each capsule contains 1 cubic centimetre of solution, one part of which solution corresponds to one part of the fresh substance. If for any reason it is undesirable for a patient to know that suprarenal gland is being prescribed the capsules may be described as "Hypodermules" (Rogers).

BOOKS RECEIVED.

M. Lermoyez and M. Boulay.—*Thérapeutique des Maladies de l'Oreille*. Vols. I. and II. Octave Doin, 8, Place de l'Odéon, Paris. 1901.

THE
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THE OPERATIVE TREATMENT OF ABSCESS WHEN SITUATED IN THE BRAIN.¹

BY CHARLES A. BALLANCE, M.S. LOND., F.R.C.S. ENG.

MR. PRESIDENT AND GENTLEMEN,—None of us can have forgotten the beautiful story of "Rab and his Friends,"² wherein is painted by a master hand an operation by your great surgeon Syme in the pre-chloroform and pre-antiseptic days. The heartrending description of the operation would be true to this day but for the genius of Simpson, as chloroform—"one of God's best gifts to His suffering children"—might still be unknown; and the "Reaper, whose name is Death,"³ would still be reaping the "bearded grain" by means of the bacillary "sickle keen"—the dread and fatal septic illness that cut off the life of Ailie—had not Lister, the peerless knight of surgery, after long years of toil, vanquished the terror of the surgeon. Truly

"We hold him for another Herakles
Battling with custom, prejudice, disease,
As once the son of Zeus with Death and Hell."⁴

Indeed, we may detach some words from a sublime passage in which Macaulay immortalizes the genius of an illustrious statesman, and say of Lister: "History will deliberately pronounce that

¹ An address delivered at a special meeting of the Otological Society of the United Kingdom, held in Edinburgh on May 11, 1901.

² By John Brown, M.D. ³ Longfellow, "The Reaper and the Flowers."

⁴ W. E. Henley, "A Book of Verses: The Chief."

among eminent men no one has left a more stainless, and none a more splendid, name."¹

In the city where these greatest benefactors of humanity lived and taught, it is indeed a high honour to have been called upon to open a scientific discussion.

On looking over my paper on the journey North, I could not help being struck with the contrast between even a practical paper and the triumphant achievements of the Edinburgh school. The exclamation of Tony Lumpkin, when Diggory handed him a letter, came to my mind :

"A damned cramp piece of penmanship as ever I saw in my life."²

"The greatest trust between man and man," writes Lord Bacon in his essay on "Counsel," "is the trust of giving counsel." We have it on the authority of his greater contemporary that—

"Some men have greatness thrust upon them."³

This is my fate ; for to offer counsel on the subject of the treatment of abscess of the brain presents transcendent difficulty, and to be requested so to do implies a trust in my ability which I am only too conscious will fall short of the standard set before me. In fact, not to put too fine a point upon it, I somewhat fear my fate may be comparable to that of Metis,⁴ whose name, Bacon tells us, signifies "counsel." It was her fate to be married to Jupiter, who, as soon as she conceived, ate her up lest he might be deprived of any of her counsel. I do not imagine that the members present will appraise my counsel so highly that they will be anxious to follow the lead of Jupiter ; but should that consummation happen, it is my fervent prayer that they may partake of a spiritual rather than of a corporeal feast.

Macbeth tells us—

"The time has been
That when the brains were out the man would die,
And there an end."⁵

Though this dire calamity frequently dogs our footsteps, yet the times have changed, for now the Society's "great consult begins,"⁶ not as in Milton's Stygian Council, held at Pandemonium, by the passing of "resolutions in despair,"⁷ but having gained "reinforcement of hope" from past success, we—

"Meanwhile revive,
Abandon fear, to strength and counsel joined
Think nothing hard, much less to be despaired."⁸

¹ "Essay on the Earl of Chatham."

² Goldsmith, "She Stoops to Conquer," Act IV., line 388.

³ "Twelfth Night," Act III., Scene iv., line 43.

⁴ Essay on "Counsel."

⁵ Act III., Scene iv., line 78.

⁶ "Paradise Lost," Book I., line 798.

⁷ *Ibid.*, Book I., line 190.

⁸ *Ibid.*, Book VI., line 493.

"Things unattempted yet"¹ the advance of knowledge will make possible; the tide of Truth is ever flowing.

"For while the tired waves, vainly breaking,
Seem here no painful inch to gain,
Far back, thro' creeks and inlets making,
Comes silent, flooding in, the main."²

So it has been in the advance of surgery. Only by slow degrees has problem after problem been grappled with and solved. One of the latest triumphs of the art of the surgeon is shown in the operative treatment of abscess of the brain. In a steadily increasing number of instances it can truly be said of the surgeon:

"Strangely visited people
All swollen and ulcerous, pitiful [in the brains],
The mere despair of surgery, he cures."³

Although in the surgical treatment of disease of the brain we are as yet only on the threshold of success, nevertheless, the near approach of a perfect understanding of these matters may be confidently predicted. Then will it be possible to enter into the thought of the Roman poet:

"No pleasure is comparable to the standing upon the vantage ground of truth [a hill not to be commanded, and where the air is always clear and serene], and to see the errors, and wanderings, and mists and tempests in the vale below."⁴

"The more I think of it," says Ruskin, "I find this conclusion more impressed upon me—that the greatest thing a human soul ever does in this world is to *see* something, and tell what it *saw* in a *plain* way." In this paper an attempt is made to tell in a *plain* way a few of the things which I see with regard to abscess of the brain. "Whether these seeings are there at all is another matter." The object in view is to induce my colleagues and fellow-workers to tell also what they have seen. "The practical bearings of our theme" are of incalculable interest to science and to man. Correct observation is the vital "thread which binds the facts" and widens the field of knowledge.

GENERAL CONSIDERATIONS.

Before describing the exact details which must be carried out in the operative treatment of abscess of the brain, certain general considerations demand attention. An abscess of the brain is situated in a tissue of "liquid texture."⁵ This tissue, containing

¹ "Paradise Lost," Book I., line 16.

² Poem by A. H. Clough, "Say not the struggle nought availeth."

³ "Macbeth," Act IV., Scene iii., line 150.

⁴ Lucretius: see Bacon's essay on "Truth."

⁵ "Paradise Lost," Book VI., line 348.

little less water than the blood and enclosed in an inextensible bony capsule, is subject to the laws of hydrostatics. The integrity of certain parts of it is essential to the continuance of life. Placed within the cranium, the abscess is, until exposed by operation, quite beyond the reach of physical examination. Important facts, therefore, readily ascertainable by this method with reference to an abscess in an accessible situation, are not at the command of the surgeon when he has to operate for the relief of brain abscess. Despite the dictum of the poet, that—

“ 'Tis the blot upon the brain
That *will* show itself without,”¹

the objective and subjective symptoms upon which the diagnosis is made point to a lesion of the cerebral substance, but do not indicate clearly its nature and extent. The surgeon has to operate without any certain knowledge as to the size of the abscess and the acuteness of the inflammation, nor can he often truly surmise whether he has to deal with circumscribed or diffuse suppuration, or both. Even when the history seems to point clearly to an acute condition, it may be found that the abscess is of old standing. Abscess in the brain may be latent, producing only general symptoms of ill-health, until excited to renewed activity by a febrile attack, by a blow on the head, or by some minor operation, such as the removal of a polypus. By a latent brain abscess, then, is meant one producing no symptoms directly referable to a lesion of the brain. Such an abscess is, in all parts of the body, enclosed in a capsule. An abscess producing slight symptoms over a considerable period of time may not be encapsuled. This is true of the brain as of the neck or any other region. This variety of abscess has a tendency to extend, causing local destruction of tissue. A history of long-continued cerebral symptoms does not necessarily point to the presence of a capsule around the area of suppuration, for in a case of cerebellar abscess with symptoms dating back at least eight months no capsule was found, but the whole cerebellar hemisphere was nothing but a shell of softened gray matter.² The two conditions of acute abscess and old encapsuled abscess may exist together, as in a case that occurred to one of my colleagues, now deceased, in which an acute cerebellar abscess was opened with relief to the symptoms, but at the necropsy an old encapsuled abscess was found internal to that

¹ Tennyson's "Maud," Part II., iv. 8.

² Allbutt's "System of Medicine," vol. vii., p. 590.

which had been opened.¹ I have drawn attention to several such instances.²

The question must now be asked, How is an abscess of the brain to be treated? There can be no discussion as to the nature of the reply. Stäcke says: "Otology is an offshoot of surgery, and only in close adherence to it and in the true and conscientious observance of its principles is success to be sought for and to be found. The most important principle is the care for free, unhindered, spontaneous drainage."³ These significant words were written in reference to the treatment of middle-ear suppuration, and they apply with equal force to the treatment of abscess of the brain, which is the only too frequent result of failure to comply with them. Success can only be won by close attention to those fundamental surgical principles which guide us in the treatment of abscess elsewhere. In one of the most recent text-books on surgery⁴ we find these principles thus tersely stated: "In the treatment of an abscess there is one absolute rule which knows no exception—viz., that whenever and wherever pus is found the abscess should be evacuated at once, and after evacuating it, thorough drainage must be provided for." To which may be added, that when a purulent collection is encapsuled enucleation is the proper treatment. In the great majority of abscesses in the brain, as elsewhere, there is no capsule. The following is, however, an instance in which a capsule $\frac{1}{8}$ inch thick was present, but owing to a mistake in diagnosis the abscess was not removed.

A man, aged forty years, was admitted to hospital on September 14, 1895, with severe occipital pain, vomiting, and slow cerebration. He had paralysis of the right sixth nerve and double optic neuritis. He lay on his right side in bed. There were forced movements to the right and rotation to the right in walking. With the eyes shut, he fell backwards and to the right. In the beginning of May in the same year he had a severe illness, with shivering, sweating, and rigor, said to have been of influenzal origin. This had been followed by slight loss of power on the left side, from which he had recovered. About ten days before admission the headache and other symptoms returned. On the day following admission (September 15) a rigor occurred at 5.30 p.m.; at 6.30 coma was complete; at 7.30 artificial respiration was necessary, and was continued until I arrived. I was told that the case was thought by the physician to be one of cerebellar tumour.

¹ "St. Thomas's Hospital Reports," vol. xxiii., p. 208.

² *Ibid.*, "Cases of Cerebellar Abscess," by T. D. Acland and C. A. Ballance.

³ *Berliner Klinische Wochenschrift*, 1889. ⁴ Da Costa, "Modern Surgery."

Considering it almost impracticable to remove a cerebellar tumour during the performance of artificial respiration, and thinking that the left-sided paresis might be due to involvement of the right cerebral hemisphere, I removed a large area of bone over the right motor cortex. The brain bulged under great pressure, but natural respiration did not return. A trocar and cannula was plunged in up to the hilt, and impinged upon a hard mass into which it would not penetrate. As this was thought to be a solid basal tumour which could not be removed, the operation was abandoned. The necropsy revealed an encapsuled abscess containing an ounce of thick greenish pus, replacing the right optic thalamus. The capsule was very firm and quite $\frac{1}{8}$ inch thick. This abscess might have been enucleated had it been recognised.

When there is no capsule the treatment is free incision and drainage, but the provision of drainage is more difficult in the brain than in other more solid tissues, where, by free incision and counter-opening, it is easy to establish drainage and effect a cure. The difficulty is that in the "liquid texture" of the brain, as soon as the abscess is opened, the intracranial pressure causes the fluid brain-substance surrounding the abscess to flow towards the surface, so that a large portion of the cavity of an unencapsuled abscess is at once shut off from communication with the incision.

Since micro-organisms behave in the brain as they do elsewhere in the body, the question naturally arises, Should the bacteriology of the abscess modify the treatment? It has been already pointed out that until the brain has been entered it cannot be discovered whether the abscess is localized or is spreading. The virulence of manifest suppuration presents clinical features which indicate its bacteriology to the mind of the surgeon who has had some training in that subject. These clinical signs cannot be observed in the case of brain abscess, but it is nevertheless supremely important to determine the nature of the micro-organism at the earliest possible moment, as the use of a suitable antitoxin may prove to be a valuable weapon in the fight against death.

DETAILS OF OPERATION.

We now proceed to consider step by step how the surgical principles of the treatment of abscess are to be carried out in the case of the brain. It is taken for granted that the local source of infection has been thoroughly removed. The abscess must now be exposed by an appropriate operation, the steps of which are the following:

1. *Sterilization of the Skin*.—Shave the scalp, scrub it with ethereal soap and sterilized water, wash the soap away with sterilized water, rub firmly with turpentine on a sterile swab and then again with ether. If the operation is not to be done immediately, apply sterilized lint soaked in a glycerine solution of perchloride of mercury (1 in 1,000). If the operation is proceeded with at once, swab the skin with strong carbolic or perchloride lotion. The hands of the operator and his assistants must in like manner be cleansed and then immersed in an alcoholic solution of perchloride or biniodide, or the glycerine perchloride solution. The wearing of sterilized gloves is also recommended.

2. *Anæsthesia*.—The anæsthetic should be chloroform, and it should be given warily, for, especially in cases of cerebellar abscess, respiration is apt to cease. On two occasions it has happened in my experience that with the first few inhalations of chloroform respiration ceased, and the operation had to be completed during the performance of artificial respiration. Neither morphia nor strychnia should be administered before the dura has been opened.

3. *Incision of the Scalp*.—A flap is to be preferred to a crucial incision. It should be cut with its base downwards, and should be considerably larger than the opening designed to be made in the skull.

4. *Opening in the Bone*.—I am convinced that failure may result from neglect of the rule of surgery to make a free opening. How can a *free* opening into the abscess be effected through an inadequate opening in the bone?

“Wounds by wider wounds are healed.
And poisons by themselves expelled.”¹

The trephine employed should be $\frac{5}{8}$ inch in diameter, of slightly conical shape, and should have the teeth outside. (a) In temporo-sphenoidal abscess the site of application of the point of the trephine should be about $\frac{7}{8}$ inch above the suprameatal spine, the object being to expose the lowest part of the middle fossa just external to the tegmen antri and tegmen tympani. Immediately above these tegmina are the tissues in which, as a rule, the infective process first develops. When the disc of bone has been removed by the trephine, more bone should be cut away with small saws, forceps, or Cryer's drill until the opening in the skull is enlarged to a parallelogram measuring $1\frac{3}{4}$ inches antero-posteriorly and 1 inch vertically. The lower edge of the parallelogram

¹ Butler, “Hudibras.”

is marked by that of the trephine opening. Three-quarters of an inch of its antero-posterior extent should lie behind the centre of this aperture and 1 inch in front. The lowest part of any abscess in the temporo-sphenoidal lobe can be efficiently drained through this opening, and the bone disease (usually the tegmina) which is the source of infection can be directly observed and removed. I have known a case where a temporo-sphenoidal abscess was opened at its highest part, and where life was only saved by making a counter-opening in the situation here recommended, the man having been for some weeks in a condition of cerebral irritation. If the abscess is above and behind or above and in front of the opening more bone should be taken away, so as completely to expose the surface of brain which is external to it, or, if the surgeon so prefer, he can make a trephine opening higher up and utilize the lower aperture as a counter-opening. The former method is recommended. (b) In operating for cerebellar abscess the same trephine should be used. It should be placed on the bone so that its anterior edge touches the posterior border of the mastoid process. Its upper edge should be just below Reid's base line. In this way the horizontal and vertical portions of the sigmoid sinus are avoided. The opening should be enlarged backwards and downwards until it is quite $1\frac{1}{4}$ inches in antero-posterior and 1 inch in vertical extent. The opening may require enlargement, especially in cases where the abscess extends into the posterior part of the lateral lobe. It cannot be carried forwards with much advantage, as the vertical portion of the sinus is in the way of incision of the dura in this direction. It is to be especially remembered that the removal of bone, while comparatively easy before incision of the dura mater, is not so satisfactorily accomplished when that membrane has been incised and the brain is bulging under pressure.

5. *Incision of the Dura Mater.*—Here, again, a flap is preferable to a crucial incision. A small aperture should be made with a knife, and the flap (having its base sideways or even upwards)¹ should then be cut with fine blunt-pointed scissors. Great care must be taken to avoid wounding the vessels of the cortex which are forced by the intracranial pressure into close contact with the membrane.

6. *Discovery and Incision of the Abscess.*—When there is a sufficient opening in the bone it may be possible to determine by palpation that the abscess is immediately subcortical. An incision should at once be made through the intervening portion of brain substance into the abscess cavity, care being taken to avoid wound-

¹ Suggested to me by Dr. C. D. Green.

ing the vessels, as in other parts of the body. The use of a trocar and cannula, a pus-seeker, or other special instrument, is unnecessary and contrary to surgical principles. If the site of abscess is not obvious, it must be sought for by exploratory puncture, and in so doing it should be remembered that the site of the abscess is almost certainly close to the bone disease which gave rise to it. The best instrument to use is a sharp-pointed, long and narrow knife. Our brains are not like Satan's

"Entrails, heart or head, liver or reins,"¹

which Milton tells us could

"Not in their liquid texture mortal wound
Receive, no more than can the fluid air";

and a wound made by the surgeon's knife will not heal quite so readily as that inflicted by the sword of Michael; yet in the brain, as elsewhere, clean-cut wounds heal more readily than any others, and there is certainly less risk of the abscess being missed when search is made for it with a sharp knife than when any other instrument is employed. There have been cases of (1) trocar and cannula missing the abscess; of (2) trocar and cannula passing through the abscess without tapping it; and of (3) trocar and cannula striking the abscess but failing to penetrate its capsule (as in case described on p. 335). The following is a striking example of trocar and cannula failing to evacuate a large abscess: "The brain was explored in various directions with a trocar and cannula" with a negative result. At the necropsy there was found "a large abscess with very thick walls containing over 4 ounces of green offensive pus. So thick was the wall that the abscess shelled out whole and could be rolled about the table. In fact, it needed a sharp plunge with the knife to open it."²

The use of the knife for the evacuation of an abscess of the brain is not a new operation, but was taught and practised more than a century ago. Dupuytren³ in one of his lectures says: "In certain cases of deeply-seated fluid collections we must incise the dura mater, the arachnoid, the brain itself if the focus is at the surface of this organ, and by this bold proceeding patients have been saved." A little further on in the same lecture he continues: "Relying also on the success of J. L. Petit, Boyer concurs in the advice of Quesnay, and does not fear to plunge the bistoury quite deeply (*assez profondement*) into the very substance of the brain in

¹ "Paradise Lost," Book VI., line 346.

² Abbott, "St. Thomas's Hospital Reports," vol. xxv., p. 205.

³ "Leçons Orales," second edition, vol. vi., pp. 183, 184 (published 1839; date of lecture not given).

order to evacuate traumatic effusions which may have formed there, and it has fallen to my lot to do so several times with success." Like many another step in the advance of knowledge, this advice, though justified by some brilliant successes, remained for a considerable time a dead letter, for we find a great English surgeon writing nearly half a century later: "There are few surgeons who would have the hardihood of Dupuytren, who plunged a bistoury into the substance of the brain, and thus luckily relieved the patient of an abscess in this situation."¹ And after yet another decade the famous case of Dupuytren is thus alluded to in a later edition of the same work: "This was doubtless a somewhat rash thing to do without previously ascertaining the presence of pus by milder means."² Dupuytren, in his account of this historical case, says simply: "I incised the dura mater, nothing came out; I thrust a bistoury cautiously" (?so as to avoid the vessels of the cortex) "into the brain, and there welled up immediately a flood of pus. That very night all the symptoms disappeared and the patient recovered."³ If careful exploratory puncture with the knife fail to find the abscess, the finger inserted into the brain-substance will almost infallibly detect the presence of a tense abnormal swelling. Mistakes, however, may still be made, as is illustrated by two cases related in my article on "Certain Affections of the Ear," in Clifford Allbutt's "System of Medicine." In one of these one cerebellar abscess and in the other two had been opened, yet both patients died from an unopened abscess, oyster-like in shape, lying immediately beneath the cortex of the upper surface of the cerebellar hemisphere. The examining finger felt the sensation of resistance, but this was attributed to the tentorium.

7. *The Further Treatment of the Abscess.*—When the cavity is not entirely closed by the waves of brain-substance, it may be gently irrigated with a weak antiseptic; but on no account should this be done unless two drainage-tubes are so arranged as to insure the free escape of the fluid. Sterilized normal saline solution is recommended, but I am not in favour of irrigation except in very exceptional and chronic cases. Unless the opening in the cortex is large, I am opposed to the tamponing or packing of the cavity with gauze, because the tampon tends to obstruct the free exit of septic material. In one case of abscess of the temporo-sphenoidal lobe in which I removed a large area of bone, I ligatured and removed the cortex corresponding to the outer boundary of the abscess. The inner wall of the abscess, which was at first treated by gauze

¹ Erichsen's "Surgery," seventh edition, 1877, vol. i., p. 532.

² *Ibid.*, ninth edition, 1888, vol. i., p. 78. ³ "Leçons Orales," *ibid.*, p. 146.

plugging, soon came to form part of the outer surface of the brain, and was thus directly accessible for dressing. Complete recovery ensued.

As to drainage-tubes, the rules for their use in abscess of the brain do not differ in any way from those which apply to their employment in the healing of suppurating areas elsewhere. When a tube has been successfully introduced, it should not be disturbed for some time. The most successful cases treated in this way are those in which the tube remains undisturbed for many days. Tubes are shortened or removed only as the cavity heals from the bottom. The nature of the tube is of little consequence. All tubes are liable to become blocked with brain débris.

In the case of a small abscess deeply placed in the anterior and inner portion of the cerebellar hemisphere, the surgeon may be unwilling to use the knife for evacuation. Recourse must then be had to the exploring trocar and cannula, the latter having rings of wire attached, by which, when it has penetrated the abscess, it may be immediately fixed to the scalp by silkworm gut. Many a case has been lost after the pus has been evacuated owing to failure to reintroduce the tube in the proper position. The trocar and cannula should be of platinized silver. In the event of a counter-opening being made or of drainage occurring in consequence of disease or of operative interference via the region of the tegmina, gentle irrigation through the diseased area of brain may be beneficial, just as it is in cases of abscess with a counter-opening elsewhere.

8. *Closure of the Wound and Dressing.*—An aperture is now made in the base of the flap of the size of the opening in the brain, and the edge of the flap is replaced in position and sutured with fine silkworm gut. In certain cases it is not advisable to replace the flap. A powder may be used for dusting around the wound, but it should be sterilized. The dressing may be of sterilized cyanide gauze, either used dry or wrung out of carbolic lotion (1 in 40). A dry sterilized cyanide dressing is recommended, and the bandage should, if possible, be so managed as not to cover the forehead.

9. *After-treatment.*—This is a matter demanding the close personal attention of the operator. The dressing may require to be changed daily or not at all, according to the nature of the disease and the condition of the wound. (1) The primæ viæ should be kept open by the administration of some preparation of mercury. I have found, too, in septic cases that the pill of colocynth and hyoscyamus is very efficient in clearing the intestine of foul-

smelling faeces. (2) In regard to food, it may be noted that barley-water and beef-tea are often borne by the stomach when milk is rejected. (3) As to alcohol, in certain cases we can hardly do without it. When it must be given, I personally prefer to order old brandy, though in this city old Scotch whisky would no doubt be selected. Far be it from me to assent to the "startling question" of the gifted Calverley, that both the ancient Greeks and the Scotch ought to have invented and adhered to another beverage :

"The Greek mind must have had some vital fault,
That they should stick to liquors so injurious
(Wine, water, tempered p'raps with Attic salt),
And not at once invent that mild, luxurious,
And artful beverage, Beer. . . .
Then nectar—was that beer or whisky-toddy ?
Some say the Gaelic mixture, *I* the Saxon :
I think a strict adherence to the latter
Might make some Scots less pigheaded and fatter."¹

(4) *Hernia cerebri* is an evidence of sepsis. It is best treated by sterilized antiseptic dressings. To prevent the dressing from adhering to the hernia some form of protective should be used; perhaps gold-leaf is the best. Slight elastic pressure is useful in the later stages of the treatment.

10. *Recurrence of Symptoms*.—It is by no means uncommon to have a return of symptoms a few days after the evacuation of the abscess, due either to the refilling of the abscess cavity from faulty drainage, or to the formation of a new abscess in another part of the same lobe. In the cerebellum, it is by no means infrequent to have a second, or even a third, abscess. Instead of concentrating the attention on the original site of abscess, the new symptoms, such as high temperature, rapid, irregular pulse, screaming fits, retraction of head, general twitchings, vomiting, drowsiness, etc., may suggest conditions such as meningitis or acute distension of the ventricles, which are not present. The surgeon,

"Vext with waste dreams,"²

and led astray by these speculations, may fail to act wisely. We may perhaps apply the words of Goethe :

"I tell you what : your speculative wretch
Is like a beast upon a barren waste,
Round, ever round, by an evil spirit chased
Whilst all about him fair green pastures stretch."³

Your great countryman, Carlyle, has said : "Genius is the transcendent capacity for taking trouble first of all." And Joubert

¹ "Verses and Translations : Beer." By C. S. C.

² Tennyson, "Idylls of the King" : "The Coming of Arthur."

³ "Faust," Act II., Scene iv. (Sir T. Martin's translation).

has written: "Genius begins great works, labour alone finishes them." Both of these maxims are eminently true of the treatment of abscess of the brain. In order to succeed, the surgeon must "take trouble first of all" in weighing well every point in the history and symptoms of the case, and in planning and executing the operation with minute attention to every detail. And in order to finish his great work, he must spare neither labour nor time in watching the progress of the case, and in personally carrying out all the minutiae of the after-treatment. Many are the vicissitudes of the days and weeks that follow the operation. To be able to choose with certainty and to carry out with precision the various measures which make for success and oppose a disastrous termination, the surgeon must have at his command an exact knowledge of the significance of the various symptoms that arise, and of the resources and methods available for their systematic treatment. The surgeon cannot here delegate his duties or shift his responsibility; and amid the difficulties that beset him in combating the disease, he may well utter the prayer which the veterans of Frederick the Great sang as they marched to meet the foe at the Battle of Leuthen:

"Grant that with zeal and skill this day I do
What me to do behoves, what Thou command'st me to;
Grant that I do it sharp, at point of moment fit,
And when I do it grant me good success in it."¹

And when the case has been brought safely through all difficulties and dangers into the smooth water of convalescence, we may well say of the surgeon who saves his patient as Bunyan did of his victorious pilgrim:

"Hob-goblin nor foul fiend
Can daunt his spirit;
He knows he at the end
Shall life inherit!
Then fancies fly away,
He'll fear not what men say;
He'll labour night and day"
[To save his patient].²

In conclusion, allow me to say how well I know the toughness of the problem which the surgeon has to face in coming to a decision to operate in certain cases suspected of harbouring an abscess of the brain. The advice given to Richard Plantagenet is much to the point:

"But yet be wary in thy studious care."³

Delay, as the result of consultation, may be disastrous, "for

¹ Carlyle's translation; see "History of Frederick the Great," Book XVIII., chap. x.

² "The Pilgrim's Progress," Part II.

³ "Henry VI.," Part I., Act II., Scene vi., line 97.

occasion turneth a bald noddle after she hath presented her locks in front and no hold taken";¹ and "the ripeness or unripeness of the occasion must ever be well weighed."² On the one hand, boldness alone is "ill in counsel, good in execution";³ on the other hand, "it is a dangerous thing to trace the thread of knowledge a little way, and fancy we have found the end."⁴ What is required in consultation is knowledge, experience, a grave sense of responsibility, and the strength to accept the consequences arising therefrom—indeed, to fulfil the Pauline exhortation, "Be strong; quit yourselves like men."⁵ When the decision to operate is made, it should be acted upon at once; hesitation or delay may be fatal. A patient suffering from cerebellar abscess has died in the night, the operation having been arranged for the following day. "True despatch is a rich thing."⁶ "Yet and but," said the Templar, "are words for fools; wise men neither hesitate nor retract; they resolve and they execute."⁷

But still, in spite of all our care and pains, success may be wooed in vain. There may be no abscess, or, if present, it may not be found.

"The best-laid schemes o' mice an' men
Gang aft agley.
An' lea'e us nought but grief an' pain
For promis'd joy."⁸

"The smallest actual good," says Macaulay, "is better than the most magnificent promises of impossibilities"; and the stay of the surgeon in the midst of depression, discouragement, and defeat is the consciousness that he has "faithfully rendered an unrewarded obedience to the command"⁹ of the Preacher.¹⁰

"The man who, though his fights be all defeats,
Still fights,
Enters at last
The heavenly Jerusalem's rejoicing streets."¹¹

"In earthly races,
To victors only do the heralds call;
But, oh! in yonder high and heavenly places
Success is nothing, *and the work is all.*"¹²

Yet, kindled by the past, the surgeon may surely say, "I shall arrive." "The succession cannot break. The further evolution

¹ Bacon's Essays: "Of Delays."

² *Ibid.*

³ *Ibid.*: "Of Boldness."

⁴ A. W. Holmes-Forbes, "The Science of Beauty," p. 195.

⁵ 1 Cor. xvi. 13; 1 Sam. iv. 9.

⁶ Bacon's Essays: "Of Despatch."

⁷ "The Talisman," chap. xix.

⁸ Burns, "To a Mouse," verse 7.

⁹ Ruskin, "Sesame and Lilies," Lecture III.

¹⁰ Eccles. ix. 10.

¹¹ C. Patmore, "The Unknown Eros": "Victory in Defeat."

¹² Quoted from a biographical sketch of Sir William Gull.

must go on . . . first the blade, where we are to-day; then the ear, where we shall be to-morrow; then the full corn in the ear, which awaits our children's children, and which we live to hasten."¹

SOME OBSERVATIONS AND REMARKS ON THE AIR-CURRENTS IN NASAL RESPIRATION.

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SINCE the respiratory functions of the nose have been fully investigated and understood, and the peculiar vascular structure of the inferior turbinates has been demonstrated, it has been assumed that the air during nasal inspiration comes into contact with these bodies, the structural peculiarities of which seem especially suited to yield both warmth and moisture. It is said² that the function of the inferior turbinated bodies appears to be that of increasing the area of mucous membrane *over which the air passes* when either more heat or more moisture is demanded; that after exposure to cold these bodies are found to assume their greatest proportions, whilst in an atmosphere supersaturated with moisture they are frequently found to be collapsed. Again, it is said that in hot dry rooms these bodies swell so as to saturate the air with moisture as it passes over their surface. Such statements as these are quite common, and while not wishing to deny that the inferior turbinates vary in size in response to the varying conditions of the atmosphere, I do not think that the air comes to any great extent into direct contact with these bodies.

There has always seemed to me considerable difficulty in accepting the idea that the inspired air travels through the lower part of the nasal cavities, and on the following grounds:

1. Patients with an absolutely free inferior meatus and post-nasal space will often complain of stuffiness and inability to breathe through the nose.

2. Hyperplastic or œdematous enlargement of the middle turbinates, especially of their anterior ends, or muco-purulent catarrh affecting the middle meatus, may cause difficulty of nasal respiration, although the lower passages may be unusually patent.

3. Polypi will cause marked nasal obstruction even in slight cases, where the inferior meatus is quite free.

¹ "The Ascent of Man," chap. x., by H. Drummond.

² MacDonald, "The Respiratory Functions of the Nose," London, 1889, p. 51.

4. A very slight enlargement of the adenoid tissue in the post-nasal space will cause considerable difficulty to nasal inspiration. On examining such a case with a post-rhinoscopic mirror, the whole of the inferior meatus and lower turbinates is easily seen, and often the greater part of the middle passages. The adenoids may only hide the upper fourth of the septum, and yet obstruction will be complained of. Even in cases of great enlargement of the adenoid tissue, it is quite rare to find the lower passages hidden from view.

These facts suggest that nasal inspiration takes place, at all events to a very great extent, through the middle meatuses. On looking into the literature of the subject, I am unable to find anything very definite or conclusive as to the course which the air takes on passing through the nose. Some observers have held that it traversed the lower meatus, whilst others have thought that it passed through the middle passage.

Paulsen¹ divided the head of a cadaver in the middle line, and distributed small pieces of red litmus - paper about the nasal passages, and having replaced the halves of the head, he drew air saturated with ammonia through the nose by means of a pump fixed in the trachea, and noted in what regions the litmus-paper was turned blue. G. Franke,² having divided a head in the middle line and removed the septum, replaced the latter by a plate of glass, and then by means of a pump placed in the trachea drew smoke through the nose, and watched its course through the glass. In both these experiments the air was found to traverse *chiefly* the middle meatus. Franke concludes that the air on entering the nose sweeps upwards towards the roof, over the middle and superior turbinates, and then curves downwards towards the roof of the naso-pharynx, the air in the inferior meatus meanwhile remaining practically stationary. During expiration he considers the air takes much the same course in the reverse direction, except that the upward curve is not so great.

MacDonald³ assumes, from the disposition, shape, and anatomy of the nostrils, as well as from the pathological conditions found in the pharynx in cases of enlarged middle turbinates, that the course of the inspiratory current is through the middle meatus. Paulsen and Franke performed their experiments on the cadaver, which render them a little unsatisfactory, whilst MacDonald,

¹ *Sitzungsab. d. k. Akad. d. Wissensch.*, Wien, 1882 (3), Bd. LXXXV., S. 348.

² *Archiv. f. Laryngol. u. Rhinol.*, Berlin, 1893, Bd. I., S. 236.

³ "Nasal Obstruction," London, 1887, p. 13.

though he advances a clever and interesting chain of argument, brings forward no fact to clinch it.

It has therefore seemed to me worth while to make some investigations in order, if possible, to determine the natural air-way during nasal respiration in the living subject, and to see if any useful points can be deduced therefrom.

The method I have adopted for inspiration is to ask my subjects to sit in front of me and to breathe absolutely naturally through the nose, whilst I, on my part, have held a Kabierskie's insufflator filled with lycopodium (the lightest innocuous powder I could think of) about 6 inches from their nostrils, and I have gently puffed the lycopodium into the air they breathed. After examining the result of this, I have asked them to breathe deeply through the nose whilst I puffed the lycopodium more liberally. As regards expiration, I have made my subjects smoke cigarettes and gently exhale the smoke through the nose, whilst I watched its course by means of a nasal speculum.

Applying these methods, I have examined normal noses and cases of spurs, deflections, hypertrophic rhinitis, rhinitis sicca, ozæna, and adenoids, and I think the examination has disclosed a few points of interest.

The following is a summary of my observations :

1. *In Normal Nares*.—During natural quiet inspiration the powder, carried by the air, impinges first on the septum at the "site of predilection" for nasal hæmorrhage and for simple perforations—i.e., a little less than half an inch within the nostrils and about one third of an inch from the floor of the nose. It then shoots upwards and slightly backwards, and spreading itself in a broad band over the septum in the middle fossa, impinges on the middle turbinated body, especially at its anterior end. The outer wall of the middle passage also often receives some of the powder, and when a good view can be obtained, the powder will be seen stretching up into the superior meatus as far as the eye can reach. The powder entirely misses the inferior meatus and lower turbinated body. Occasionally a little may be seen on the upper surface of the latter, but it must be remembered that, though light, lycopodium is heavier than air, and it has appeared to me that what settles in this position has been carried there by its own weight. It may therefore be accepted, I think, as a fact that in all cases of normal nares the inferior meatus will be free from powder, and even in abnormal noses I have not seen any deposited in the channel formed by the under surface of the inferior turbinate above, and the floor of the nose below. On examining the post-

nasal space with a mirror, if powder has penetrated as far back, it will be seen quite at the top of the posterior choanæ, and possibly on the upper fourth of the septum, but no lower. Some will also be seen on the roof of the naso-pharynx.

After deep and forcible inspiration, the distribution of the powder is much the same as on quiet inspiration, only in addition some may be seen at the upper part of the internal surface of the lower turbinated and more on its upper surface. None, however, is ever seen on its under surface or on the floor of the nose. Posteriorly, considerable quantities will be seen on the roof of the naso-pharynx and some on the Eustachian cushions, as well as on the upper part of the septum. If inspiration has been sufficiently forcible, some powder will be seen in the centre of the posterior wall of the pharynx, and in a few cases, where enough has passed through to show well, it has seemed to follow the V-shaped distribution of the lymphoid tissue on the posterior wall, so often seen in children with adenoids, coming to an apex at the centre of the oral portion of the pharynx. From this point the powder takes a straight course into the larynx, impinging on the arytenoids and processus vocales, missing, as a rule, the epiglottis.

The course of the expired air is a little more difficult to determine accurately, but, as far as can be gathered by the smoke-test, it seems that expiration takes place, at all events to a very great extent, through the inferior meatus, if the inferior meatus be defined as that portion of the nasal cavities below the upper level of the inferior turbinated body.

If the subject of experiment exhale the smoke very slowly, it apparently comes out along the floor below the under surface of the lower turbinate; if exhalation is moderately forcible, it comes through the whole of the inferior meatus, as defined above; if it is quite forcible, it seems to come through both middle and inferior passages, but always more abundantly, more rapidly, and in a more compact stream through the latter. I think it is evident that whilst inspiration takes place through the middle and superior passages, the expired air passes chiefly through the inferior passage. It will be noticed that this conclusion is somewhat at variance with that arrived at by Franke, who thinks that expiration also takes place through the middle fossa, only on a lower level than inspiration.

2. *In Cases of Spurs.*—If a spur is situated fairly low down, and does not protrude very far forward, and even though it is in firm contact with the inferior turbinate, it does not make any difference whatever to the distribution of the powder during in-

spiration. During expiration the smoke-stream is generally split into two, one half passing above the spur and the other half below the spur.

If the spur, on the other hand, is situated higher up, or if it is prolonged forward to or beyond the 'site of predilection,' then the distribution of the powder is considerably altered. The anterior end of the spur is thickly coated, and the stream is diverted on to the inferior turbinate, the anterior end or inner and upper surfaces getting powdered according to the position and size of the outgrowth. In spite of the obstruction some of the powder generally finds its way into the middle meatus, especially during forcible inspiration, in which case its distribution is as in a normal nose, and if any powder finds its way into the post-nasal space it will be seen on the roof. Expiration may be partly above and partly below, or entirely below, the spur, depending apparently on its position.

3. *In Cases of Deviation of the Septum.*—The exact curve, extent, and position of the deviation in each particular case influences markedly the distribution of the powder. It will collect on any deviation which prevents the free entrance of air into the middle meatus. After striking the deviation, the powder may pass on to the upper surface of the inferior turbinate or on to the outer wall of the middle meatus; but a good deal of it generally passes upwards and strikes some portion of the under surface of the middle turbinated body.

As regards expiration in cases of deviation, no rule can be laid down, but it is most frequently through the inferior meatus.

4. *In Cases of Turgescence and Hypertrophies of the Inferior Turbinated Body.*—The inferior turbinated body may be very considerably enlarged without in any way affecting the distribution of the powder. It shoots straight above it, and becomes deposited in the middle and upper fossæ as in a normal nose. If the anterior end is markedly enlarged so as to obstruct the air-way into the middle meatus, it will then become covered with powder, and the amount in the middle meatus will be diminished or absent according to the size and position of the enlargement. In some cases the stream of powder will be turned into the inferior meatus between the lower turbinate and septum, but not between it and the floor, and in other cases the bulk of the powder will pass along the lower part of the middle passage, but little penetrating to the higher regions. Moderate enlargement of the posterior end of the inferior turbinate does not apparently affect inspiration.

On expiration, the behaviour of the smoke varies according to

the exact condition of the inferior turbinate. If the condition is such as to obstruct the inferior meatus, the smoke dribbles from above the inferior turbinate in a diffuse manner, instead of in a straight stream. This occurs whether the passage is blocked in its whole length or whether the obstruction is at either its anterior or posterior end. Enlargement of the posterior end of the inferior turbinate has a marked effect on the smoke, destroying the stream and diverting it into the middle meatus. Artificial stenosis of the anterior portion of the inferior meatus, produced by plugs of cotton-wool, has the same effect.

5. *In Hypertrophies of the Middle Turbinated Body.*—If the lower passage is clear, a large amount of powder will be seen on the enlarged middle turbinate on inspiration, and none can be seen beyond it, unless the passages are very roomy. In the post-nasal space the powder, when it does find its way through, has a rather lower distribution than in normal cases. The smoke in expiration is unaltered.

6. *In Rhinitis Sicca.*—In these cases, as would be expected, the anterior portion of the septum and the anterior end of the middle turbinated body are especially covered with powder.

7. *In Cases of Ozena* the powder is deposited as in a normal nose.

8. *In Cases of Polypi.*—When polypi obstruct the middle meatus, the powder impinges against the anterior end of the inferior turbinate, and also becomes entangled amongst the polypi.

9. *In Adenoid Growths.*—In cases of adenoids much depends upon their size. In slight cases, the anterior nares being normal, the powder passes through the middle meatus as usual, and impinges on the anterior surface of the growth, and, collecting there, can be seen with a mirror. In more aggravated cases a great deal of powder passes along the inferior meatus, showing chiefly on the lower part of the septum and inner surface of the inferior turbinated body. Little, if any, reaches the post-nasal space, even on forcible inspiration, but becomes entangled in the growths. Expiration is not appreciably interfered with in slight cases, and even in marked cases not nearly so much so as in inspiration.

REMARKS.

Various interesting points seem to me to arise out of the above observations, which may be discussed under the same headings.

1. *Normal Noses.*—From the distribution of the powder in ordinary quiet nasal *inspiration*, we may conclude that inspiration

takes place through the middle and superior passages of the nose, and that very little air comes into direct contact with the inferior turbinated body. This suggests, firstly, that the inferior turbinated body keeps the residuary air (that is, the air remaining stationary in the nose between the end of expiration and the commencement of inspiration) saturated with moisture and warmed to blood-heat, and that the inspiratory current is warmed from this rather than by being directly exposed to the inferior turbinated body itself; and, secondly, that possibly the mucous membrane covering the septum and middle and superior turbinates plays a more important part in warming the inspired air than is usually supposed, and that hence its conservation in operative surgery is most probably important.

As regards *expiration*, judging from the smoke-stream, it may be concluded that it occurs through the inferior meatus chiefly. Seeing that in no case, with either normal or abnormal nares was any powder found in these experiments to be deposited below the inferior turbinated body, it may be assumed that this region of the nose plays no part whatever in inspiration. Is it possible that the function of the inferior meatus is connected with the efficient drainage of the nasal cavities? The secretions from all parts of the nose naturally tend to gravitate towards the inferior meatus, and the constant flow of air during expiration would tend to force the secretions towards the nostrils. This would not be counteracted by the inspiratory stream, as it takes a different course. Added to this, if on blowing the nose the expiratory blast comes chiefly through the inferior meatus, where the discharges have collected, it has a narrow channel to traverse, and so can gain sufficient *vis a tergo* and swiftness to force before it the collected secretions, thus resembling shooting a pea from a pea-shooter. If, on the other hand, the expiratory blast were distributed over all the nasal chambers, it would be like trying to shoot a pea from the barrel of a gun.

Again, as regards *olfaction*, it seems probable that odorous substances are carried sufficiently high by the ordinary air-stream to stimulate the special nerve-endings. Recent investigations have shown that the true olfactory mucous membrane is limited to a small area on the upper part of the superior turbinated body, with a corresponding area on the septum (A. von Brunn¹). It has been assumed from Paulsen's and Franke's experiments that this area is above the air-way. Haycroft², in his article on the Sense of Smell

¹ *Arch. f. mikr. Anat.*, Bonn, 1892, Bd. XXXIX., S. 632.

² "Text-book of Physiology," edited by Schäfer, Edinburgh and London, 1900, vol. ii., pp. 1248-9.

in Schäfer's "Physiology," explains the stimulation of this sense-organ by the gradual displacement of the residual air in the upper part of the nasal cavities by air coming from the main air-current, which latter, if laden with odorous substances, would thus reach and stimulate the sense-organ. Now, if a powder as heavy as lycopodium is carried in perfectly ordinary nasal inspiration well up into the superior meatus, and probably higher, surely odorous substances, which, it may be assumed from their behaviour in air, are always lighter than air, would be carried well up into the highest meatus, and so come into contact with the special nerve-endings; and the short forcible sniffs given when one desires to distinguish the odour of any particular thing would undoubtedly bathe the sensitive region with the odorous substances.

Lastly, the course of the air-way in the pharynx and larynx, as shown by the deposition of the powder, also suggests points of interest. The fact that in the pharynx the air seems to follow the distribution of the adenoid tissue is suggestive that the function of the latter structure is, as is often surmised, to deal with the impurities of the air, especially those of a bacterial nature. The fact that the air during inspiration impinges on the arytenoid bodies, and not straight on the vocal cords, may have a purpose in protecting the latter structures from the direct irritation of the air and foreign particles.

2. *Spurs and Deviations*.—As far as nasal inspiration is concerned, the above observations seem to point to the necessity of operative interference only when spurs and deviations are so situated as to obstruct the direct route of the air into the middle meatus. As far as I can judge, the majority of spurs are situated sufficiently low down and far back as to be out of the way of the air-stream, and therefore, as far as breathing is concerned, they may be left alone. Deviations, on the other hand, are a far more frequent source of obstruction, even very slight deviations, which one is in the habit of looking upon as hardly worth interfering with. Dislocation of the anterior triangular cartilage is also productive of very great obstruction, often preventing any powder at all entering the nostril, and therefore urgently requiring surgical interference. I think these facts are corroborated by clinical observations. Spurs are constantly discovered in patients utterly unaware of any nasal trouble. These will be found to be situated low down and not very far forward. Simple deviations, or deviations with spurs, are found to be productive of considerable trouble, as are also dislocations of the anterior triangular cartilage. The inspiration of lycopodium may be put to a practical use, for it

lodges chiefly on those parts which are causing obstruction to the normal air-way, and one is therefore enabled to see exactly those parts which should be removed or reduced in size in order to remove the nasal stenosis. I have already found this most useful, for in this way it has been possible to limit the operation to those parts actually causing the obstruction, and thus to preserve much useful mucous membrane.

As regards expiration, it may occasionally happen that a spur, though so situated as not to interfere with inspiration, may render expiration uncomfortable and even difficult, in which case operation will be necessary.

The above remarks apply to spurs and deviations in relation to the air-way. Operative interference is also said to be necessary on account of their mechanical irritation causing chronic rhinitis, and, secondarily, chronic otitis, pharyngitis and laryngitis. Of this I am very doubtful. Clinically, I fancy, one never sees spurs producing these secondary manifestations unless the air-way is interfered with. As already mentioned, spurs not causing difficulty of breathing are very constantly found in people not complaining of any trouble whatever.

3. *Inferior Turbinated Bodies*.—My observations on these cases quite confirm what I believe has now become fully recognised, namely, that in order to relieve nasal stenosis it is sufficient to remove either the anterior end of the inferior turbinate or the posterior end, or both, but that it is never necessary to remove the whole body. It must be remembered that the anterior and posterior ends of the lower fossa of the nose are anatomically narrow, whereas the middle portion is comparatively wide, so that, even if the middle part of the inferior turbinate is enlarged, it produces less ill result. For the relief of difficult inspiration, the anterior end most frequently requires attention, and for the relief of difficult expiration the posterior end may have to be dealt with. Great turgescence or hypertrophic outgrowths of the inferior turbinate may also cause difficulty of expiration, in which case they will require treatment. We have seen that in a normal nose practically no powder is deposited on the anterior end. Should it therefore be found to be thickly coated with powder at the expense of the middle meatus, it may be taken for granted that it is a source of obstruction, and it should consequently be dealt with.

4. *Enlargements of the Middle Turbinated Bodies*.—As far as nasal inspiration is concerned, my observations lead me to believe that enlargements of the middle turbinates are as deleterious as, if not more so than, a similar condition of the inferior turbinates.

Patients are often met with who complain of stuffiness of the nose to such an extent as to necessitate buccal breathing, and yet who can, on being told to do so, shut the mouth and breathe comparatively easily through the nostrils. In such, the middle turbinates will be found to be enlarged, and if lycopodium is used it will be seen that their anterior ends and under surfaces are thickly coated with powder. When these conditions are found, it is advisable to remove the anterior ends of the middle turbinates, so as to restore the air-way into the upper fossæ, which are normally used in quiet nasal inspiration.

5. *Polypi*.—The normal air-way being chiefly through the middle meatus, it is easy to see why even small polypi should produce considerable distress in breathing. They should of course be removed for this as well as for other reasons.

6. *Rhinitis Sicca*.—In this disease the two favourite places for the formation of crusts are the "site of predilection" on the septum and on the anterior end of the middle turbinates. These are the two places on which the lycopodium powder most readily and chiefly collects during inspiration, and therefore it may be concluded that they are the places on which dust and other foreign particles carried by the air would most readily impinge, causing irritation, dryness and crusts.

7. *Laryngitis Sicca*.—In this trouble the crusts are most commonly seen covering the arytenoid bodies, the interarytenoid space, and the vocal processes. Here, again, it is just the parts on which the lycopodium powder impinges during ordinary inspiration which become dry and crusted. In this may be traced cause and effect.

8. *Ozæna*.—MacDonald¹ suggests that an up-turning of the nostrils diverts the air-stream along the inferior meatus, and hence the up-turning of the nose to avoid an unpleasant smell. This suggested to me that possibly in the typical ozænic patient, in whom the nose is anatomically upturned, the air might take a lower course than normal, and that this conceivably in some measure might account for the drying of the secretions. Observations with lycopodium in cases of ozæna, however, show that the air-stream takes the usual course.

9. *Adenoids*.—The normal course of the air-stream apparently sweeps over the vault of the naso-pharynx. This fact, and the collection of powder between the posterior choanæ and the pad of growth, explain why a small overgrowth of adenoid tissue considerably interferes with the normal air-way, producing nasal stenosis. It is interesting to note that in bad cases of adenoids

¹ "Nasal Obstruction," pp. 13, 14.

the air-stream takes a lower course, as shown by powder being deposited on the inner and upper surfaces of the inferior turbinated body.

SUMMARY.

These observations show :

1. That during quiet inspiration in a normal nose the air traverses the middle, superior, and probably the fourth meatus.

2. That inspiration is impeded by :

(a) Spurs and deviations of the septum and enlargements of the inferior turbinated body, if they project forward and upwards. (For practical purposes I think a rule may be laid down that if such abnormalities cross and break an imaginary line drawn from the anterior extremity of the inferior meatus—*i.e.*, just internal to the vestibule—to the anterior end of the middle turbinate, they will cause obstruction.)

(b) Enlargements of the middle turbinated body, polypi, etc.

(c) Hypertrophies and growths springing from the vault of the naso-pharynx.

3. That in expiration the air traverses chiefly the inferior meatus.

4. That expiration will be more especially affected by :

(a) Hypertrophies of the posterior end of the inferior turbinate.

(b) Hypertrophies, etc., causing stenosis of the inferior meatus.

PROCEEDINGS OF THE BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

General Meeting, May 10, 1901.

Mr. MAYO COLLIER, *President, in the Chair.*

MR. LENNOX BROWNE showed a patient, who had been exhibited at the last meeting, suffering from a lympho-sarcoma growing from the back wall and rather to the right of the pharynx. This had now been removed, a tracheotomy having been previously performed and a Hahn's cannula introduced. The tumour, which

was growing from a base 3 inches in length, was more or less encapsuled, and being of a friable character, had to be removed piecemeal. There was little or no hæmorrhage, the patient made a quick recovery, and increased half a stone in weight. The epiglottis, however, which had been pressed considerably to the left, had not recovered its form.

Mr. LENNOX BROWNE remarked that the result to the patient, as well as the microscopical examination to follow, went to prove, first, how necessary surgical interference had been, and how unwise it would have been to delay; and, secondly, that the fear expressed by some of the Fellows that there might be serious hæmorrhage had not been realized; in fact, it had been markedly small. This feature was in accord with Mr. Browne's experience in all cases of a similar histological character.

Dr. Wyatt Wingrave's report on the microscopical examination: The total weight of the nineteen fragments amounted to 4 drachms; the tissue was extremely soft and friable and difficult to harden and cut. It was composed almost entirely of small round cells, in which the nuclei were relatively larger than the protoplasm. The chromoplasm of the nucleus did not stain readily, and exhibited no evidence of active mitosis. There was no definite arrangement of the cells and the matrix was only scanty. It was diagnosed as a round-celled sarcoma, somewhat lymphoid in character. A portion weighing 25 grains was removed one week later, which afforded well-marked evidence of stroma and showed the cells deposited in distended lymph-spaces, so supporting the view as to its lymphoid type. There was no definite capsule. Dr. WINGRAVE considered that growths of this type were of comparatively low malignancy.

Dr. ABERCROMBIE stated that the patient had only noticed the growth six weeks before operation, and there had been apparently no sense of discomfort in the throat previous to that time.

Dr. STUART LOW mentioned a case of similar character which had grown very quickly, and suggested that as in both cases the patients' work caused them to inhale a great deal of dust, there might be a causal relation between the inhalation of dust and this condition.

Mr. LENNOX BROWNE mentioned that other cases had been reported in which this relationship had been noted.

Dr. VINRACE asked whether these cases were very malignant, and wished to know the after-history of similar cases when not operated on.

The PRESIDENT congratulated Mr. Lennox Browne on the

excellent result in this case, and was rather surprised at the freedom from hæmorrhage at the operation. In answer to Dr. Vinrace, he considered that if not operated on these cases soon terminated fatally.

Case of Laryngeal Tuberculosis in a Boy aged Sixteen. Shown by Dr. WYATT WINGRAVE.

The patient complained of loss of voice of seven months' duration. The larynx presents all the characters of the pachydermatous form of laryngeal tuberculosis — dry corrugated condition of the vocal cords, with general thickening of the surface epithelium.

Under treatment it has become much more moist, and the ulceration of the glottis is more evident.

He has well-marked physical signs at the right apex, sweats profusely, and the sputum contains tubercle bacilli.

Ulcer on the Floor of the Mouth.

Mr. MAYO COLLIER said that this patient was sent into the North-West London Hospital some six months ago suffering from a necrosis of the tibia of syphilitic origin and a well-marked ulcer on the floor of the mouth of an apparently typical epitheliomatous nature. The condition of the patient was such as to preclude any efficient operation on the floor of the mouth and tongue.

Treatment was directed to the cure of the tibia and the improvement of the general health. Liquor hydrargyri perchlor. in 1-ounce doses, combined with iodide of potassium in 10-grain doses, was continued for a space of three months whilst in hospital. Under this treatment the lesion on the leg filled up, and the part became quite sound, and, strange to say, the ulcer in the floor of the mouth disappeared, and the site was quite sound when the patient left the hospital.

The patient within the last few days presented himself with a deep and ragged ulcer on the floor of the mouth in the old site, with the floor of the mouth quite hard and infiltrated and the glands on both submaxillary spaces hard and infected. The present appearance was that of a typical epithelioma of the floor of the mouth, with invasion and infiltration of the floor and with secondary glands in the submaxillary spaces.

This case was extremely interesting as tending to show the part played by syphilis as a forerunner to epithelioma.

Dr. BARCLAY BARON considered that the case was undoubtedly epithelioma. He considered the case too far advanced for operation.

Mr. LENNOX BROWNE agreed, and urged the necessity of occasionally seeing patients in whom, under anti-syphilitic treatment, suspicious-looking growths had disappeared.

Case of Atrophic Rhinitis, with Sphenoidal Empyema. Shown by Mr. CHICHELE NOURSE.

This patient, a clerk, now aged twenty-three, first came under observation in May, 1895. At that date he complained of a disagreeable smell in the nose, perceptible only to himself, and of nasal discharge, accompanied in the morning by a little blood. He had first noticed these symptoms in a slight degree two years before. Both inferior turbinal bodies were atrophied, so that the posterior wall of the pharynx was visible through either nostril, and there were some crusts on the middle turbinals.

The pharynx was inclined to be dry. The fauces were relaxed and the tonsils small. The senses of smell and taste were unimpaired. The patient could give no history of any previous illness.

In May, 1898, the case presented the clinical aspect of ordinary non-fetid atrophic rhinitis. There was no offensive smell, but the nares were full of crusts.

At a later date no crusts were to be seen, but merely thick opaque secretion on the floor of the nose and on the middle turbinals; the inferior turbinal bodies also began to swell and the back of the pharynx became red and moist. In the meantime, however, he lost the sense of smell. During 1899 slight fetor was noted on two or three occasions, and the local conditions have varied considerably from time to time. The sense of smell is now beginning to return.

By transillumination both sides of the face and the lower parts of the orbits were well illuminated. The frontal sinuses examined by the probe were empty.

The sphenoidal sinuses, which were probed without difficulty, nearly always contained some purulent secretion. They were washed out through a cannula with evident benefit.

The following measurements were taken from the root of the septum at the entrance of the nostril: The sphenoidal sinus, 8.5 centimetres on the right, 8.1 centimetres on the left; the anterior wall of the sinus was met with at 7 centimetres on the right and 6.9 centimetres on the left; so that the right sphenoidal sinus was 1.5 centimetres and the left 1.2 centimetres in antero-posterior diameter. For comparison, the depth of the naso-pharynx was noted to be 8.2 centimetres on either side.

Dr. BARCLAY BARON asked for the exact details of the method

of passing a probe into the sphenoidal sinus, and wished to know how Mr. Nourse made certain that he was in the sinus.

Dr. KELSON remarked that although he had endeavoured to pass a probe into the sphenoidal sinus on many occasions, he had not been always successful.

Dr. GRANT and Mr. NOURSE demonstrated the method of passing a cannula into the sphenoidal sinus.

A Case of Complete Paralysis of the Right Vocal Cord. Shown by Mr. CHICHELE NOURSE.

The point of interest in the present case lies in the condition of the right vocal cord, which is not merely completely motionless in the cadaveric position, but also quite lax and without tension, so that the edge forms an irregular arch instead of a straight line. During attempts at phonation there is a distinct interval between the two cords, and the right arytenoid lies in front of the left, and apparently at a higher level.

The history of the case is as follows: On the morning of April 10 the patient, a clerk aged thirty-four, previously in good health, found that his voice had disappeared during the night. When he consulted me, a fortnight later, he was still in the same condition—that is, unable to use his voice except as a toneless whisper. He showed me, however, that by making considerable effort he could produce a low, deep bass note for a moment. His condition at present is the same.

Repeated examinations of the patient's chest have given only negative results; moreover, there is no cough and no expectoration. On the other hand, he states that his father died of phthisis at the age of forty-five and his brother of the same disease at twenty-one.

The condition of the larynx recalls strongly the description of a case recorded by H. Moser, quoted by Mr. Lennox Browne in his work on "Diseases of the Throat and Nose"; and I venture to think that the crico-thyroid muscle is affected, as well as those muscles supplied by the right recurrent nerve.

During my examination of the patient I noticed that the breath was foetid and that the tonsils were enlarged. The patient mentioned also that there was always more or less secretion from the nose. Since then he has had an attack of tonsillitis.

These observations suggested a very obvious course of treatment, and also the possibility that in case of an irritating catarrhal condition of the nose, naso-pharynx, and fauces, the lymphatic gland, lying close to the base of the skull by the wall of the

pharynx, becoming enlarged, might press upon the trunk of the vagus nerve and cause laryngeal paralysis.

In the absence of proof, the applicability of this possibility to the present case rests, of course, wholly on conjecture.

Dr. BARCLAY BARON (Bristol) related particulars of a case of a gentleman aged fifty years who complained of alteration of voice which had been present for three months. He had had cough, shortness of breath, and failing health for about a year previously.

The right vocal cord was found to be completely paralyzed, the left pupil was dilated, and the left radial pulse was much smaller than the right one. Examination of the chest revealed fulness of superficial veins in front, on right side some deficiency of resonance, but no dulness over the upper three ribs; no alteration of breath or heart sounds. No pulsation could be seen or felt, and there were no adventitious cardiac or arterial sounds to be heard on auscultation. At the back tubular breathing could be heard over a limited area, corresponding to the centre of the impaired resonance in front.

As all this pointed to an aneurism, Dr. James Taylor examined the patient with the X rays and fluorescent screen, and it could then be clearly seen that there was the dark shadow of a large aneurism extending up from the base by the heart to the clavicle, and out to the axillary line on the right side. The outer edge of the shadow was clear-cut and curved, and was evidently the wall of the dilated vessel. On the left side the aorta projected a good inch from the left side of the spinal column, and could be seen to pulsate.

The great interest of the case lies in the extensive character of the lesion, affecting all parts of the aortic arch, and the extreme paucity of symptoms.

An admirable skiagram, illustrating all these points and taken by Dr. James Taylor, was shown.

Mr. LENNOX BROWNE considered that Mr. Nourse's case was one of recurrent nerve paralysis, due probably to aneurism of the aorta, and hoped that Mr. Nourse would have the case examined by the X rays. He insisted on the great advantage to be gained in similar cases by the use of the X rays, and congratulated Dr. Barclay Baron on the excellent skiagrams shown. He advised the removal of the enlarged tonsil in this case.

Dr. DUNDAS GRANT looked upon the case as one of recurrent nerve paralysis, due probably to some thickening at the root of the right lung. He emphasized the importance of skiagraphy in these cases.

A Case of Laryngeal Pachydermia. Shown by Dr. P. H. ABERCROMBIE.

W. B.—, aged seventy years, a coachbuilder, attended on Saturday, April 20 last, complaining of deafness only, of about four months' duration. A large plug of hard wax was seen in the right meatus, and drops were prescribed to soften it. He returned to the hospital on Saturday, May 4, when the wax was removed by syringing, and with great improvement to the hearing.

It was noticed that his voice was hoarse, although he made no complaint about it, and on inquiry it was found that the hoarseness had been present since Christmas of last year, when it came on "after a cold." There is no pain, no cough or spit, and no interference with respiration or deglutition. There is no loss of flesh. He has always been a very healthy man, and has not required the services of any medical man for thirty years. His family history is good; there is no history of either tubercular or malignant disease. Examination of the chest proved negative.

In the larynx, the posterior parts of both vocal cords present redness, swelling, and ulceration, the appearances resembling pachydermia laryngis. The uvula is elongated, but does not appear to inconvenience the patient in any way.

A Case of Esophageal Cancer invading the Pharynx. Shown by Mr. CHICHELE NOURSE.

This patient, a man fifty-two years of age, has suffered from increasing difficulty in deglutition during the last seven or eight months. He cannot swallow solids at all, and has been losing weight.

On examination with the laryngeal mirror, a shelving growth is visible, which projects from the posterior wall of the pharynx, partly hiding the arytenoids, and rendering it a matter of some difficulty to obtain a view of the interior of the larynx. The difficulty is further increased by the presence of much saliva and mucus, which lodges in the lower part of the pharynx instead of passing on into the stomach in the ordinary way. There is no specific history.

The question is, What is the best thing to do in the way of treatment?

The PRESIDENT considered that operation was not possible in this case.

A Case of Bullous Enlargement of the Middle Turbinal Body (with specimen). Shown by Mr. CHICHELE NOURSE.

This patient, a foreign Jewess aged thirty, complained of a pain on the top of the head. On inspection, a large rounded mass was visible in the upper part of the right nostril, which had apparently pushed the septum over to the left in the progress of its growth. It proved to be the enormously expanded anterior extremity of the middle turbinal body, and seemed an unusually large example of that condition.

By means of a snare I removed the piece which forms the specimen shown, consisting of the anterior half of a large empty cell. The bleeding was inconsiderable, so that after the operation the remaining half was easily inspected. It was lined with a pale-gray smooth membrane, and behind it was another large mass, which I removed in the same way at a later date. Unfortunately, the second piece, which was even larger than the first, slipped back into the pharynx, and was at once swallowed by the patient, so that its nature remains undetermined. From the sensation during removal, it probably consisted of more enlarged cells.

Consequent on these proceedings, the headache was relieved. In this case no pus was seen in the nose at any time, but I think it more commonly happens that such turbinal enlargement is met with where there is suppuration in the ethmoid or in one of the sinuses, or in cases of atrophic rhinitis. The most common site of pain is across the bridge of the nose.

A Case of Malignant Disease of the Superior Maxilla. Shown by Dr. PERCY JAKINS.

F—, aged forty-two, had always enjoyed good health until January last. During that month she observed a small swelling inside the mouth, which caused much pain during mastication. It was also painful at night, and caused her to lose her rest. The affection began as a little boil on the left side of the palate, close by the first molar tooth, and gradually extended until it assumed the form of a deep ulcer, destroying the soft tissues and bone. In the meantime the cheek externally began to swell.

The patient has been married twenty-five years. She has had five children, of whom one died of convulsions, one of teething, and one of measles. The other two are alive. She has had no miscarriages. Her father died at the age of seventy-five; her mother, aged sixty-five, is still alive.

Dr. DUNDAS GRANT considered it to be a case of epithelioma, and advised operation.

The PRESIDENT agreed, and advised operation, not so much with the idea of curing the condition as that of easing the patient.

A Case of Long-standing Deafness cured by clearing the Nose and Naso-pharynx. Shown by the PRESIDENT.

Miss S——, a doctor's daughter in the Midland counties, sent by a medical man at Bournemouth to consult me as to her deafness and condition of throat. She had suffered with sore throat all her life; deaf seven years, increasing markedly the last three years. Now almost completely deaf, and could only hear when shouted at. Never discharge from either ear; never pain; tremendous noise in both ears, continuous, of a singing character; throat always uncomfortable; mouth dry in the morning; sleeps with mouth open. Tests: Conversation, extreme difficulty; 3-foot watch, nothing; 6-foot watch, 4-inch—contact. The A tuning-fork, 3 inches—3 inches; bells, 9 inches—4 inches. Examination: Ears, both drumheads depressed. Operation March 29, right side. April 2, watch equals 12 inches—4 inches.

THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Meeting, June 10, 1901.

Sir WILLIAM B. DALBY, *President, in the Chair.*

A Case of Skin-grafting after the Complete Mastoid Operation. Shown by Mr. W. C. BULL.

The operation was followed by a very considerable improvement in the patient's hearing-power, which before operation had been very poor indeed. Occasionally, when the child was out of health, a slight discharge was present.

The PRESIDENT thought the case very successful, and considered that the small area which was still uncovered with epithelium would heal.

Mr. CHEATLE did not consider that this area would heal, and did not regard the small amount of discharge as of any surgical importance.

Mr. BALLANCE considered the result good.

A Patient with Post-Operative Atresia of the Meatus. Shown by Mr. R. LAKE.

Two operations had been performed, and, despite great care in after-treatment, the meatus had contracted, and had finally become

quite closed. He asked for any suggestions as to how to avoid such a condition and to treat it when it arose.

Mr. BABER narrated the facts of a similar case where he had performed a Stacke operation.

Mr. TILLEY had also met with the same condition and with the same difficulty in treatment.

Mr. BALLANCE suggested that in such cases the postero-superior portions of the meatus should be entirely cut away, and that subsequently the raw surfaces should be grafted.

Dr. DUNDAS GRANT thought that there was considerable scope for grafting in such cases.

A Female Patient in whom an Acute Mastoid Abscess had been cured by a Stacke-like Operation. Shown by Dr. STCLAIR THOMSON.

The postero-superior portion of the bony meatus and the outer wall of the attic had come away spontaneously as a sequestrum.

Dr. MILLIGAN did not consider that the case was one of primary acute mastoiditis, but thought there was evidence of there having been previous disease of a chronic nature within the ear, and that what had happened was an acute exacerbation on the top of a chronic lesion. He also considered that there was still slight disease present.

Dr. DUNDAS GRANT concurred in this view.

An Adult Patient suffering from Tuberculosis of the Temporal Bone. Shown by Mr. A. CHEATLE.

The patient had a dry cavity in the apex of his right lung. The temporal bone became suddenly affected, and at the time of operation there was extensive disease burrowing down to the dura, which was thickened and very granular. Operation had been undertaken, and satisfactory progress was being made.

Dr. MILLIGAN asked what evidence Mr. Cheatle had of the tuberculous nature of the affection. He did not think that the case had been proved to be tuberculous, as no examination for bacilli had been made, nor had any inoculation experiments been attempted. In patients suffering from tuberculosis it was by no means infrequent to have middle-ear lesions cropping up which were simply of pathogenic origin, and he considered that unless definite evidence of a tuberculous process was present the case should not be looked upon as of a tuberculous nature.

Dr. PRITCHARD had not the slightest doubt that the case was tuberculous.

Dr. MACKENZIE JOHNSTON considered that in such a case the finding of bacilli in the ear was only a matter of scientific interest,

and did not see what importance it had from the point of view of treatment.

Mr. BALLANCE associated himself with the remarks which had been made by Dr. Milligan, and thought that no evidence had been put forward which justified the diagnosis of tuberculosis of the temporal bone. He considered it of distinct importance that thorough search should be made for definite evidence of tubercle.

Mr. R. LAKE agreed with Mr. Ballance's statements, and remarked that at the North London Hospital for Consumption many patients were admitted with middle-ear disease, where examination in such cases did not go to show that the middle-ear lesion was tuberculous.

Dr. JOBSON HORNE said that it would be more convincing and satisfactory to have a diagnosis based upon positive evidence of tuberculosis, but at times this was difficult to obtain, although the clinical facts might leave no doubt in one's mind as to the nature of the case. This difficulty he had himself met with, not only clinically, but also post-mortem. At the post-mortem examination of some cases of middle-ear suppuration—presumably tuberculous in origin, and in which there had been extensive destruction—although, of course, there had been no difficulty in obtaining cultures of other organisms, he had been unable to obtain tubercle bacilli, either by film preparation, or by the inoculation of animals with material from the interior of the diseased ear. In one such case, however, he had succeeded in finding the bacilli in sections cut from the soft parts lying immediately over the necrosed bone. From this he could readily understand the difficulty that might be experienced clinically in finding tubercle bacilli, more particularly if they were only sought for in the more central portions of the affected area, from which the bacilli disappear. The clinical evidence, however, in cases of tuberculosis of the ear, if at all advanced, was not uncommonly sufficiently pathognomonic, he thought, to permit of the diagnosis being based upon it.

Mr. CHEATLE replied.

A Case of Septic Thrombosis of the Lateral Sinus, with Associated Mastoid Disease and Post-pharyngeal Abscess. Details by Mr. SECKER WALKER.

Extensive operative interference had been undertaken, with the result that the patient recovered. A considerable portion of the cochlea had exfoliated as a sequestrum, and the interesting point of the case was that the patient still retained a considerable amount of hearing-power.

On the suggestion of the PRESIDENT, it was agreed that Mr. Walker should bring the patient up before the Society, in order that he might have his hearing-power carefully tested.

Dr. ADOLPH BRONNER showed two microscopic sections from cases of *Epithelioma of the External Auditory Meatus*.

Details of a Fatal Case of Hæmorrhage from the Ear occurring in a Child aged Two and a Half Years. Related by Dr. MILLIGAN.

The child had been the subject of suppurative middle-ear disease, and at the time of admission to hospital was extremely anæmic from profuse loss of blood. A subauricular abscess cavity was found communicating with the external meatus. Ligature of the common carotid artery of the same side was successfully performed by Mr. H. Lund. Two days afterwards recurring hæmorrhage took place, with a fatal result. At the post-mortem examination the internal carotid artery was found eroded and lying in the above-mentioned abscess cavity. Dr. Milligan asked whether in such cases it would be advisable to tie both carotid arteries.

Dr. PRITCHARD read the notes of a case of *Temporary Loss of Audition and Equilibrium from an Overdose of Quinine*. He remarked specially upon the loss of equilibrium which had been observed in this particular case.

Mr. L. A. LAWRENCE showed *Specimens of a Red Vegetable Growth Removed from the Ear*.

Mr. MACLEOD YEARSLEY showed *Macro- and Micro-photographs of a case of Papilloma of the Auricle*.

Mr. W. C. BULL showed a *Specimen of Central Necrosis of a Portion of the Semicircular Canals*.

Mr. C. H. FAGGE showed a *Specimen of Exfoliation of the Cochlea*.

PROCEEDINGS OF THE AUSTRIAN OTOLOGICAL SOCIETY.

February 26, 1900.

Professor POLITZER, *President, in the Chair.*

Auditory Neuritis from Influenza. Shown by Dr. ALT.

On the second day of illness the mouth was drawn to the right, and next day there was tinnitus and deafness on the left side and severe vertigo, so that the patient could not sit up in bed. Her gait was unsteady; she could not stand on one foot with the eyes

shut. Weber to right. Rinné and bone conduction markedly shortened on left side. High notes relatively better heard.

Professor FRANKL HOCHWART remarked that toxic affections of the labyrinth might cause difficulty in diagnosis in such cases.

(Edema of Lower Eyelid on touching Inner Wall of Tympanum.
Shown by Dr. URBANTSCHITSCH.

The patient had undergone the radical operation, and the cedema was produced by touching the inner wall near the foramen ovale.

A Patient with Dry Perforation on Both Sides, who was readily hypnotized by the Sound of a Tuning-fork. Shown by Professor URBANTSCHITSCH.

She did not feel needles stuck in the skin, and on one occasion nasal polypi were removed without causing pain. There was marked flushing of the face, beginning at the temples. When aroused by blowing on the face, she recovered herself slowly, suffering the while from headache, flushed face, and dizziness, so that she could not raise herself without help.

Chronic Otitis Media Suppurativa of Right Side, with Cholesteatoma, Polypi and Meningeal Symptoms; Operation—Exposure of Middle and Posterior Cerebral Fosse; Cure. Shown by Dr. HAMMERSCHLAG.

The patient was a girl of seven with otorrhœa of a year's duration. When admitted to hospital there was retraction of the head, tenderness on pressing the cervical spinous processes, hyperæsthesia of the skin of the legs, increased patellar and skin reflex. Pupils contracted, but reacting normally. The patient was quite conscious; the expression was very anxious, and she cried out when moved. The right mastoid was very tender. At the operation the middle-ear spaces were found full of pus and cholesteatoma; the dura was discoloured over the tegmen antri, and covered with purulent exudation. The dura was then exposed over the posterior fossa, and found green, discoloured, and covered with pus. An incision 2 centimetres long was made in it, but no liquid escaped. The wound was loosely plugged.

Spinal puncture on the same day yielded 50 c.c. of clear uncoagulable liquid under high pressure. The right fundus was very hyperæmic. The temperature was normal on the third day, and recovery was satisfactory.

In this case there was pachymeningitis externa of the middle

and posterior fossæ. The general meningeal symptoms were due to increased pressure of the cerebro-spinal fluid.

Chronic Suppurative Otitis of Left Side, with Granulations in the Middle Ear and Caries; Rigors; Operation—Opening of the Posterior Fossa and the Thrombosed Sinus; Cure. Shown by Dr. HAMMERSCHLAG.

The patient was a girl of twenty who had had otorrhœa since childhood. After a few days of left-sided headache she had a severe rigor. The mastoid was apparently normal, but there was slight paresis of the left facial nerve. At the operation the middle-ear spaces were found full of granulations; the middle fossa was exposed over the tegmen antri, but the dura was normal. The sinus was then exposed and found to be surrounded by pus, but, as the vessel still appeared normal, it was not opened.

Slight improvement followed the operation, but the patient had a severe rigor that night, and another next day, and the sinus was accordingly fully exposed. The upper end was gangrenous, and was therefore excised with scissors, and all suppurating clots removed. The temperature fell immediately after the operation, and recovery was uneventful.

The Otitis Media of Sucklings. By Dr. SIEGFRIED WEISS.

Twenty-eight cases were examined, mostly atrophic children dying of diarrhœa, broncho-pneumonia, etc.

The disease in question is essentially benign, affecting only the superficial layers of the mucosa. Infection occurs chiefly through the tube, rarely through the blood. The frequency of the disease is probably due to the embryonic structure of the mucosa in young infants. It is much less resistant than the same tissue in adults. Organisms were found in the following order of frequency: *Diplococcus pneumoniae*, *Streptococcus pyogenes*, *Staphylococcus pyogenes aureus* and *albus*. They were found chiefly in the exudation, rarely in the superficial layers of the mucosa, and only three times in the bloodvessels. Perforation was present only in 1.2 per cent.

Thrombophlebitis of the Cavernous Sinus in Consequence of an Extradural Abscess. Narrated by Professor POLITZER.

A man of forty, with right otorrhœa of sixteen years' duration, was attacked with pain in the head, fever, and dizziness. When admitted to hospital a fortnight later there was complete atresia of the right meatus and right exophthalmos, with swelling of the eyelids. On the left side there was a less degree of exophthalmos and chemosis of the lids. Temperature 104° F.; rigors.

At the operation a large exostosis was found growing from the posterior wall of the meatus, and the anterior and posterior walls were adherent. The exostosis was chiselled away, and the tympanum and mastoid cells were found packed with cholesteatomatous masses, which were removed. The marked symptoms of thrombosis of the cavernous sinus rendered it probable that the transverse sinus would also be affected (by extension along the petrosal sinus), and it was therefore exposed, but found to be normal. The exophthalmos increased, and the patient died four days after operation. *Post-mortem*: A large extradural abscess overlay the discoloured but intact tegmen tympani, extending as far as the cavernous sinus, which was full of broken-down ichorous clots. The carotid and the roots of the fifth nerve were bathed in pus. Above the cavernous sinus there was a patch of purulent meningitis; the retrobulbar tissue was suppurating; the petrosal and transverse sinuses were normal. Thus thrombosis of the cavernous sinus occurs from suppurative disease of the middle fossa, though no doubt it is rare.

Monatschrift für Ohrenheilkunde, March, 1900.

William Lamb.

Abstracts.

MOUTH, Etc.

Minerbi, Dr. C. (Florence).—*External Palpation of the Tonsillar Region*. "Bolletino," Florence, April, 1901. (Review by Dr. V. Grazzi.)

As it sometimes happens that it is impossible to examine the fauce of a child, it is very important to have some external sign which will inform us of the existence of an acute affection of the fauces.

According to the author, this sign consists in swelling, which occurs early, especially in diphtheria, and appears in a point corresponding to the superior triangle of the neck, situated between the angle of the jaw, the anterior margin of the sterno-mastoid, and the greater cornu of the hyoid. The author states that in the course of twenty years' experience there is swelling of the amygdalic glands of Chassaignac situate in this part, *always from the commencement of fever*, and this not only in diphtheria, but in all the acute tonsillar affections of children.

One must beware of confounding the glands of Chassaignac with another group, rather more superficial and mobile, which occurs in the superficial fascia immediately below the angle of the jaw, and which, according to the author, receive the lymphatics of the gum and second bicuspid of the same side.

Some have thought that this swelling might be the inflamed tonsil itself, felt from outside, but the author has excluded this by demonstrations on the dead body, and established that the swelling is due to the engorgement of the amygdalic glands of Chassaignac.

A day or two from the occurrence of fever from a tonsillar affection, swelling takes place in another group of glands which the author calls the inferior amygdalic glands, situated immediately external to the corresponding greater cornu of the hyoid. This swelling disappears with the cessation of fever, and before that of the glands of Chassaignac. Minerbi, after most careful observation, concludes that the amygdalic glands are anatomically separated from the other lymphatics, and describes clearly the nature of this separation. *James Donelan.*

Prota, Dr. G. (Naples).—*Fibroma of the Tonsil.* "Archiv. Ital. de Laringologia," January, 1901.

Dr. Prota describes the history and symptoms of this affection at considerable length, and gives an extensive bibliography. The case was that of a woman aged fifty who had suffered frequently from tonsillitis. There was a large pedunculated tumour curved "like an eagle's beak," and growing from a base about 3 centimetres in diameter at the upper part of the left tonsil. There was no pain, and no glandular enlargement. The growth was snared by Professor Massei under cocaine, and was found to have the ordinary structure of a fibroma. *James Donelan.*

NOSE, Etc.

Cholewa, Dr. (Cassel).—*Why do Nasal Polypi recur?* "Monatschrift für Ohrenheilkunde," March, 1900.

The author differs from Hermann, who thinks polypi are always secondary to irritation, generally from pus; and also from Hajek, who thinks the irritation generally starts from the surface of the mucosa, and that the bone-changes are secondary. He directs attention to the formation of new bone occurring after influenza, under the periosteum, which is thickened and vascular, and may contain tiny abscesses and necroses. More frequent than large subperiosteal abscesses such as occur after enteric are superficial erosions of the surface of the bone. The periosteum is thickened and vascular, and easily separable as the result of a kind of subacute osteo-myelitis—rarifying ostitis. In calling this disease caries, Woakes only used the nomenclature of his time, which had not yet distinguished between the specific tuberculous ulcer of bone, true caries, and the eroding ostitis of other infectious diseases. Rarifying ostitis is not the result of inflammation of the mucosa, but rather it is the result or final stage of a long-continued inflammatory process of the lower periosteum. *William Lamb.*

Garrow, A. E.—*Rodent Ulcer of the Nose.* "Montreal Medical Journal," January, 1901.

The patient was a woman, seventy-one years of age. Twenty-two years previously three small nodules developed in the inner corner of the right eye. These broke down and gradually ulcerated, and were followed by a new crop of tubercles on the other side. The sore covered the whole right side of the nose from the angle of the orbit, and extended over to the left side. It was dry, covered with scab, and exuded no fluid. The edge was infiltrated, though not much elevated, and there were no surrounding nodules. It was not painful.

The treatment consisted of removal by the scalpel of the tissues

surrounding the ulcer for at least a quarter of an inch, and the dissecting of the whole of the base of the ulcer from the underlying tissues. Compression was then applied for twenty-four hours to stop the hæmorrhage. After that Nougard's paste was applied for twenty-eight hours. This was followed by sloughing, and the healthy granulating area was treated, the result being a re-formation of healthy skin.

An important point was that the bones were not involved, although the disease had existed for twenty-two years. *Price-Brown.*

McKenzie, Dan.—*Suprarenal Gland Extract in the Epistaxis of Hæmophilia.* "Brit. Med. Journ.," April 27, 1901.

The patient, a boy aged thirteen, was brought to the author on account of persistent nose-bleeding, which had lasted for ten days. Insertion of the speculum into the left—the affected nostril—was sufficient to start the flow, but no bleeding-point could be found. Tannin was given for insufflation, and 5 grains of calcium chloride in water every four hours by the mouth. No effect was, however, produced. The nostril was plugged with just as little success. Three tabloids (5 grains in each) of suprarenal extract were broken up in one ounce of water and allowed to settle. A tampon of cotton-wool was then soaked in this solution, and inserted into the nose. The hæmorrhage was almost immediately arrested. *W. Milligan.*

Schadle, Jacob E. (St. Paul).—*Erosions and Ulcerations of the Triangular Cartilage of the Septum.* "St. Paul's Medical Journal," April, 1901.

Treating first of the susceptibility of the septum to pressure-influence on account of its position, the author divides these influences into traumatic or inflammatory in character, the traumatic being generally due to blows and injuries during the period of childhood. He refers to the high arching of the hard palate as being sometimes responsible for the deviation or malposition of the septum, the phenomenon being explained by the fact that through congenital influences the development of the arch is out of proportion with that of the septum narium, whereby the normal growth of the triangular cartilage is interfered with and a crowding process established.

The pressure-influences from within are, he considers, mostly inflammatory, as, for instance, the irritation set up by the contact of hypertrophied turbinals on the septum producing perichondrial irritation and cartilaginous thickening. He concludes by emphasizing the importance of the early treatment of erosions before ulceration is established, for which purpose he prefers various forms of lubricants preceded by warm alkaline sprays. *St. George Reid.*

Stevenson, David H. (Richmond, Indiana).—*Nasal Diseases and their Differential Diagnosis.* "New York Medical Times," April, 1901.

The paper first deals with the necessity of thorough and careful examination of the nasal cavities and the naso-pharynx; in speaking of diseases of the septum, which the author divides into inflammatory and non-inflammatory, he refers to rhinitis anterior sicca as being the most frequent cause of nasal hæmorrhage, and being probably due to the irritation of dust on a weak, unduly exposed mucous membrane covering the tubercle of the septum. When referring to turbinal affections he draws attention to the frequency of cysts in the anterior end of the middle turbinate. With regard to accessory sinus disease,

he speaks of the great importance of trans-illumination, and calls attention to the numerous cases of persistent neuralgia and reflex neuroses, which are undoubtedly due to sinus affections.

St. George Reid.

Wishart Gibb.—*Polyp removed from Naso-Pharynx.* "Canadian Practitioner and Review," February, 1901.

This was the report of a case of myxo-fibroma of the naso-pharynx occurring in a man aged twenty-six. It was attached by a short pedicle to the post-septum, and, as is usual in cases of this nature, was single. The growth was lobulated, movable, hard and yellow. The removal was complete, and the probability was that there would be no recurrence.

Price-Brown.

Ziem, Professor (Danzig).—*The Etiology of Malignant Tumours.* "Monatschrift für Ohrenheilkunde," March, 1900.

Chronic catarrh seems to predispose, and sometimes an acute attack, as of influenza. The effect of injury is probably over estimated; details are wanting as to the condition of parts before the injury. Another element is probably always necessary: an infectious irritant such as chronic suppuration, syphilis, erysipelas, influenza, enteric, or malaria. Fœtid nasal (and aural) suppuration seems frequently to have preceded malignant disease. Infections play an essential part in the origin of malignant tumours. Their extraordinary increased frequency in marshy districts suggests the inhalation of some sort of miasma as one element in the causation.

William Lamb.

LARYNX.

Frankenberger.—*On Resection of the Trachea.* "Annales des Maladies de l'Oreille," etc., May, 1901.

The author remarks that during the past year he carried out several experiments in resection of the trachea in dogs. He now brings forward the case of a trachea stenosed from tuberculosis. The patient was a working girl, aged sixteen years, with a family history of tubercle. Tracheotomy had been necessitated in 1898 owing to urgent dyspnœa. On laryngoscopic examination, the larynx was found normal, by tracheoscopy (by Killian's method) there was seen to be a stenosis opposite the fourth or fifth ring forming a sagittal chink 3 millimetres wide. The tracheal mucosa was reddened throughout.

Treatment was at first palliative, by inhalations. Later, catheters (12 to 15 English) were introduced into the trachea, which enabled the patient to breathe with greater facility and more comfort. She left the hospital after fifty days' treatment with the passage enlarged 1 millimetre.

The author gives details of certain experiments on dogs, and suggests that the operation should be performed on the human subject for similar stenoses to the one brought forward.

MacLeod Yearsley.

Payne, E. M.—*Whooping-cough Cured by Irrigation of the Nares.* "Brit. Med. Journ.," May 4, 1901.

An account of a case of severe whooping-cough in a boy aged nine. The usual remedies having failed, recourse was had to systematic

irrigation of the nasal cavities with a 1-40 carbolic lotion. The result was so successful that the author commends the procedure as worthy of a more extended trial.

W. Milligan.

ŒSOPHAGUS.

Killian, G.—*A Difficult Case for the Use of the Œsophagoscope.* "Deut. Med. Woch.," December 20, 1900.

The patient, a woman aged fifty-two, swallowed a tooth-plate with two lateral projections. After the use of cocaine an œsophagoscope 9 millimetres in diameter was passed, and soon came in contact with a foreign body. The dental plate could then easily be seen. Attempts were made to extract it, but unsuccessfully, the plate being firmly held by the œsophageal mucosa. Finally, the plate was cut through by a specially-constructed cautery blade and removed in three pieces.

W. Milligan.

E A R.

Aitken, David William.—*Note on the Treatment of Otorrhœa.* "The Lancet," April 20, 1901.

Although the method is quite prompt in its effects upon acute otorrhœa, its benefits are greatest in old-standing cases where the mastoid has become infected. The appliances required are a probe, some antiseptic lotion, and some absorbent cotton. The best probe for the purpose has at the end two spiral teeth which, while they hold the wadding firmly, permit of its easy removal by rotating the stem counter clock-wise. The first step is to pour into the ear some of the lotion. Then take as large a plug of wadding as is deemed sufficient when screwed upon the probe to easily fit the meatus. It is now possible to make the probe and ear canal a suction syringe. The plug of wadding which forms the piston is gently pushed in and then withdrawn. If it is found to be either too large or too small another can be at once substituted which acts both easily and also fits close enough to force some of the fluid before it. This fluid reaches both the attic and also the mastoid recesses. At any rate, on the first withdrawal sufficient vacuum is produced to allow the lotion to enter the accessory cavities. It will surprise anyone who has not carried out this procedure to note how much discharge and débris are brought to the surface, even after syringing and swabbing have been efficiently performed. After several repetitions of the manœuvre, the head each time being turned to the opposite side to permit of emptying the meatus, the lotion will well up clean. Now, one can get any medicament to the clean surfaces. Begin with chinolol, iodoform, or amyloform in alcohol, which, in my experience, is best in the absolute state. It is practically painless in almost all cases, and in the exceptions the smarting is but momentary. Its advantages are: (1) it acts promptly upon the polypoid growths; (2) it is a most satisfactory antiseptic; and (3) as it evaporates it leaves a dry surface. This is most important. When the solution has been poured into the ear the process with the "piston-rod" is repeated several times. Thus the fluid is forced into all the recesses. That this is so is seen by the prompt improvement both in the local condition and also in the constitutional state. Of course, discretion is used

as to the nature of the drug selected in the progress of the cure, according to the requirements—stimulant, astringent, etc.—of the case. It is unnecessary to select examples. Suffice it to say that many cases have been treated, and that in some the patients have probably been saved from the somewhat serious operation of trephining the mastoid.

StClair Thomson.

Bar (Nice).—*On Ringworm of the External Auditory Meatus.* “*Annales des Maladies de l'Oreille*,” etc., May, 1901.

This is a long and fairly exhaustive paper on the occurrence of trichophyton in the meatus. Two cases are described. The disease is very rare in the ear, and difficult of diagnosis without the aid of the microscope. The signs, prognosis and treatment are discussed, and the author arrives at the following conclusions:

1. Most of the dermatomycoses can attack the meatus and cause a parasitic otitis, important to recognise and difficult to cure.

2. The trichophyton of Malmsten is one capable of causing these inflammations.

3. Trichophytic otitis are acute, subacute, or chronic, characterized by a dermatitis which can be extremely violent, with an eruption of vesicles and pustules, or simply erythematous and squamous.

4. Prognosis is good in acute cases, variable as to the integrity of the ear and the hearing in cases which progress slowly.

5. Diagnosis must be made principally from furuncle, otomycosis, impetiginous and squamous eczema, various acnes, syphilitic erythemas and roseolas, and various syphilides. Microscopic examination can alone decide the case.

6. Treatment runs on the general lines which govern those of dermatomycoses, and in the direction which takes account of the etiology, according to the region in which the malady occurs. Among the medicaments and parasitocides which one can employ in such cases, sublimate lotions (1-1000), and naphtholene in vaseline (1-10) are the best.

Macleod Yearsley.

Courtade.—*On the Treatment of Acute Otitis Media by Insufflations of Air.* “*Annales des Maladies de l'Oreille*,” etc., May, 1901.

The author briefly refers to the frequency, symptoms, and signs on examination of attacks of acute middle-ear inflammation occurring in the course of an acute coryza. He dismisses the usual routine treatment of such cases to draw attention to a method which is at once sedative and curative when applied at the outset of the malady, viz., the insufflation of air.

If, he says, on the appearance of pain, such insufflation be practised, the patient is relieved, the head becomes less stuffy, and the deafness diminishes or disappears; at a later stage the sound of coarse mucous râles can be perceived with a diagnostic tube. In most cases, especially in children, one insufflation is sufficient to relieve the pain and arrest the progress of the inflammation. Immediate relief is less often noted in adults, because they do not consult one until they are unable to work or sleep. The less recent the case, the less immediate is the relief, and several insufflations are necessary.

The author cites several cases of his own, and reviews the opinions of various authorities on the subject. He discusses the mode of action of the method. Even when the mucosa is invaded by pathogenic

micro-organisms, he does not think there is any risk in using the air-douche, but antiseptic treatment is necessary to help the recovery of the mucous membrane.

MacLeod Yearsley.

Jakins, Percy.—*A Case of Temporo-Sphenoidal Abscess following Middle-Ear Suppuration; Operation; Recovery.* "The Lancet," March 30, 1901.

A man, aged twenty-four years, had had whooping-cough at the age of four years, and measles when he was a year older; when he was ten years old he had scarlet fever, and three years previous to the time of his admission to hospital he suffered from influenza; the ears had not been affected in any of his illnesses. For two years he had had a discharge from the right ear, the cause of which was unknown. Five months before admission he attended a special hospital for this discharge; a polypus was removed, and he was told to syringe his ear with a lotion, and to have a white powder blown into it, but neither the removal of the polypus nor the treatment prescribed caused any diminution of the discharge, which became offensive.

On admission the temperature was 99.4° , and the pulse was 64. The patient had severe pain all over the right side of the head, the right mastoid was very tender on pressure, and there were marked giddiness and nausea; the complexion was very pale, there were sordes on the lips and tongue, and the breath was decidedly offensive. The patient was heavy and drowsy, his speech was slow, and his body was much wasted. On examination the meatal canal was found to be full of offensive pus, and when this had been removed there was seen to be a distinct bulging of the superior and posterior meatal wall. On the following day (August 22) the patient, whose temperature was 98.4° at 10 a.m., was placed under chloroform, the antrum was explored and was found to contain granulation tissue and cholesteatoma; this was curetted. The attic was found to be in a similar condition, and was treated in the same way, and a communication was found leading to the middle fossa, the dura mater being exposed. The skin incision was carried upwards, the temporal muscle was divided, the periosteum was reflected, and a piece of bone was removed by the trephine. As the dura mater looked healthy and there was no bulging, it was decided not to explore the cerebrum, feeling sure that if an abscess was there it would make its way towards the point of least resistance. The wound was packed with iodoform gauze and the patient was put back to bed. On the next day the patient felt decidedly better, the headache was less, and he had slept fairly well; the highest temperature for the day was 99.4° . On the following day he expressed himself as feeling quite well; the highest temperature for the day was 99° . On the 25th the patient suddenly became exceedingly restless, and complained about noon of severe headache, especially over the occipital region. He soon became drowsy, and then comatose, and the nurse noticed that he did not move his left arm or left leg. The author was sent for, and found that the patient had complete left hemiplegia. Chloroform having been given, on removal of the packing the dura mater was seen to be bulging through the trephine opening. The dura mater was incised, a medium-sized trocar and cannula was then driven into the brain-substance for a distance of $1\frac{1}{2}$ inches, and on withdrawing the trocar a very offensive pus escaped. A Horsley's pus-seeker was next used, and the abscess cavity was emptied of its contents, about 2 ounces. A large drainage-tube

having been passed into the cavity, the wound was packed with gauze. The temperature was 97.4° at 6 a.m. The evening temperature (taken at 5:30) was 103.0° . The patient was very restless, continually moving his right leg; in a short time he began to move his left leg. Next day (August 26) he was better, and could move his left arm and leg; the highest temperature for the day was 102.8° at 2 p.m. On the 27th the highest temperature for the day was 101.2° . On the 28th the patient was very restless and almost maniacal. On the next day the drainage-tube was removed, cleaned and shortened, and re-inserted; the highest temperature for the day was 100.4° at 2 a.m., and it was thenceforth normal. The patient made an uninterrupted recovery. The tube was removed on September 20, and he left the hospital two days afterwards, having been resident for thirty-three days. On December 9 he was quite convalescent. To use his own words, "he felt better than he ever did," and he had gained weight and strength.

This case bears out the author's opinion that the presence of a polypus or granulation tissue in the external meatus indicates trouble in the antrum or attic, or both, and that simple removal of the growth through the external meatus in no way touches the disease which is causing the trouble. It also illustrates another point, namely, that in cases of suppuration from the middle ear which do not yield rapidly to treatment the advisability of the radical operation should be seriously considered, not only with the view of arresting the discharge from which the patient suffers, but to prevent deeper mischief, such as cerebral abscess.

StClair Thomson.

Joachim, O. (New Orleans).—*Two Cases of Otitic Lateral Sinus Disease: Operations with Ligature of the Jugular.* "Arch. of Otol.," vol. xxix., No. 4.

Two typical cases, with death in one and recovery in the other. The vein was ligated in both, the writer being in favour of it whenever a high degree of pyæmia is present.

Dundas Grant.

Kickbafel, G. (Danzig).—*Examination of the Pupils of the Municipal Deaf-mute School at Danzig.* "Arch. of Otol.," vol. xxix., Nos. 2 and 3.

Thirty-nine were examined, eleven congenital and fifteen acquired, three being doubtful. Bilateral deafness was found in three, unilateral in four, partial hearing in both ears in twenty-two, and partial hearing in one ear in four. In a large number of the cases there were diseased conditions requiring treatment, such as adenoids, chronic suppuration, tubercle, etc. He advocates hearing exercises as part of the general system of deaf-mute education, without superseding the instruction in and by articulation. The details of the methods and results of the examinations are very full.

Dundas Grant.

Lehr, G. (Rostock).—*Contributions to the Knowledge of Intracranial Complications of Ear Disease.* "Arch. of Otol.," vol. xxix., Nos. 2 and 3.

This paper includes references to ten and reports of nine cases, being the entire number of intracranial suppurations of otogenous origin in Professor Körner's Aural Hospital in Rostock since November, 1896. As a rule, he has omitted incurable cases of purulent leptomeningitis and cases of external pachymeningitis without pus.

In one acute case following influenza paracentesis and mastoid

operation failed to prevent meningeal infection, which seemed to extend from the spongy bone round a hiatus of the Fallopian canal. In another the cause was a gunshot wound, the fatal meningitis occurring more than two years later. In this case lumbar puncture withdrew no fluid. Another was a typical temporo-sphenoidal abscess, recovering after operation. Another case was remarkable for the amount of bone that was destroyed. In another case sinus phlebitis followed scarlatinal necrosis of mastoid and squama. Recovery followed operation with ligature of jugular vein. The early development of the sinus phlebitis was remarkable. Sinus phlebitis in another case of acute mastoiditis was in one case treated by evacuation of the sinus, as far as the clot was disintegrated, without ligature of the jugular vein. Recovery followed. In the last of the cases a perisinus abscess in acute mastoiditis after typhoid was evacuated by operation, recovery ensuing.

Dundas Grant.

Muck, Dr. (Rostock).—*A New Case of Mastoiditis in a Diabetic Patient.* "Arch. of Otol.," vol. xxix., No. 4.

After paracentesis on account of acute suppuration of the middle ear, the inflammation increased, and signs of mastoiditis supervened. Operation was performed, revealing pus in the antrum and softened bone. The interior of the mastoid was not so much broken down as in Professor Kørner's other cases, hence there was no dullness on percussion.

Dundas Grant.

Schwabach, Dr. (Berlin).—*On Diseases of the Organ of Hearing in Pernicious Anæmia.* "Arch. of Otol.," vol. xxix., No. 4.

One case observed by the author is described, and several from the clinics of Dr. A. Fraenkel and Dr. Stadelmann are shortly reported. When the ear was affected the deafness occurred rather suddenly, and was of the type of obstructive deafness. A microscopical examination in a fatal case showed hæmorrhages into the lining of the Eustachian tube and tympanum, hampering also the stapes in the fenestra ovalis.

Dundas Grant.

Siebenmann, Professor F. (Bâle).—*Multiple Rarefaction ("Spongiosierung") of the Labyrinth Capsule found at the Autopsy of a Case of Progressive Deafness.* "Arch. of Otol.," vol. xxix., Nos. 2 and 3.

Professor Liebenmann contends that extensive rarefaction of the labyrinth capsule is sufficient, independent of an involvement of the bony nerve-canals, to produce a decided diminution of bone-conduction. According to its localization, it may produce a bony stapes ankylosis, or progressive nerve-deafness. A minute report is given of a case in which a dullness of hearing (considerable in the right ear, slight in the left) gradually developed. Rinné for the *a*-fork was positive and Weber negative. There was found post-mortem on both sides areas of rarefaction in the bony capsule of the semicircular canals, the vestibule and the cochlea. There were osteophytes on the vestibular and tympanic surfaces of the oval window margin, commencing ossification in the cartilaginous covering of the stapes, and, on the left side, commencing ossification of the annular ligament. Minute details of the nature and situation of the osseous changes are given, and the author apparently explains the diminished bone-conduction by variation in density of the labyrinth fluid. (He does not explain the

"positive" Rinné in face of a partial ankylosis of the stapes.) In the way of treatment he suggests the internal administration of phosphorus.
Dundas Grant.

Stetter, Professor (Königsberg).—*Report of the Out-patient Department for Diseases of the Ear and Mouth for the Years 1898, 1899.*
 "Monatschrift für Ohrenheilkunde," March, 1900.

The first two decades of life furnish almost as many cases of ear-disease as the last five.

Professor Stetter emphasizes the great importance of early and free paracentesis in acute otitis media, and narrates a case with severe local and general symptoms which was cured as by the stroke of a magician's wand by free incision. The membrane was thickened, and the quantity of matter that escaped indicated a considerable focus, which could only have been the antrum; and yet there were no symptoms indicating implication of the antrum or calling for its exploration.

Pure trichloroacetic acid is strongly recommended for the destruction of granulations. It is applied daily at first, and is very slightly painful.

Professor Stetter maintains a conservative attitude regarding the radical mastoid operation. He believes that many cases of acute otitis and mastoid periostitis can be cured by the timely performance of Wilde's incision.

Epithelioma of the Lobule.—A woman of fifty-four had her ears pierced for ear-rings. An ulcer formed at the site of one puncture—a painful, suppurating sore, which when seen in the third year of its existence had become epitheliomatous.

Hardened cerumen may be softened in a few minutes by menthol-vasogen.
W. Lamb.

Suarez de Mendoza.—*Untoward Consequences of Clumsy Attempts at the Extraction of Foreign Bodies in the Ear.* "Archives de Médecine et de Chirurgie Speciales," February, 1901.

An article which reiterates much that has been said before as to the danger of unskilled endeavours to extract foreign bodies from the ear. The most pregnant remarks are those put in italics—namely, that before all things it is necessary to be certain that the foreign body is in reality in the auditory meatus. One should never attempt the extraction of a foreign body without previous minute examination of the ear with a mirror and speculum.
MacLeod Yearsley.

Waterhouse, H. F.—*Lateral Sinus Pyæmia and Cerebellar Abscess with Cheyne-Stokes Respiration; Recovery.* Medical Society of London (from the "Lancet," March 30, 1901).

The patient was a dental surgeon admitted into Charing Cross Hospital on April 17, 1899, with lateral sinus pyæmia. He had been for many years a sufferer from chronic tuberculous abscesses in the region of the right hip, and had had a purulent discharge from both ears for the greater part of his life. In 1895 Mr. Waterhouse had operated upon him for a large supramastoid abscess on the right side, and shortly prior to admission Dr. Green had opened two abscesses of the right hip. On April 11 the patient felt ill; the temperature was 100° F., and the pulse was 100. An April 12 he had a rigor in a train. On April 13 he had a rigor of half an hour's duration and a temperature of 103°. On April 15 Mr. A. M. Sheild saw the patient and diagnosed

lateral sinus septic thrombosis, but was unable to decide upon which side the condition was. On admission to Charing Cross Hospital the patient's temperature was 104.2° , the pulse was 100, and the heart and lungs were normal. There were no pupillary changes and no optic neuritis. From this time to April 28 the patient had repeated rigors, the highest temperature was 105.2° , and a systolic heart murmur developed after continuous pain over the base of the heart whilst he was in hospital. Cough was noticed a few days later, and the sputa was of prune-juice colour. His condition became profoundly toxæmic and apparently hopeless. Much valuable time was of necessity lost in waiting in the hope of determining upon which side the sinus was affected. At last, on April 28, when it became clear that the time for operative interference with any hope of success was rapidly passing away, Mr. Waterhouse operated upon the left lateral sinus and internal jugular vein, dividing the latter between two ligatures and incising and clearing out the septic thrombus in the former. Recovery took place; nevertheless, on May 1 Dr. J. W. H. Eyre, bacteriologist to the hospital, found streptococci in the blood. Everything went well until June 7, when the patient was allowed to get out of bed. On June 8 complaint was made of headache, vomiting occurred, and the pulse fell to 56. Drowsiness increased, until on the evening of June 10 the patient was comatose, and there were double optic neuritis, Cheyne-Stokes respiration, and a pulse of only 50. It was then decided to explore the temporo-sphenoidal lobe and the cerebellar fossa on the left side. Unfortunately, the former was first attempted, with negative result. Respiration ceased entirely under even partial anæsthesia. Owing to the patient's condition vigorous artificial respiration had to be resorted to, and the movement thus caused some laceration of the cerebral substance by the exploring-needle. Soon the pulse ceased to be perceptible, and, as the patient was obviously very near death, the exploring syringe was made to perforate the tentorium cerebelli from above. Immediately an ounce of fætid pus was obtained, the respiration and pulse recovering at the same instant. The left cerebellar fossa was now rapidly trephined and several drachms of pus were evacuated. Progress was henceforth most satisfactory, although there was for many days much word-deafness owing to injury to the temporo-sphenoidal convolutions. The patient was at the present time in better health than before his illness, and was in full practice as a dental surgeon. Speech was nearly perfect; he could now manage a gas and ether extraction, comprising from sixteen to twenty teeth and stumps, and could walk ten miles, in spite of his lameness. Mr. Waterhouse alluded to the extreme difficulty that had existed with regard to the decision as to which lateral sinus was affected and the hesitation he felt in risking operating upon the wrong side. He considered that the endocarditis having developed whilst the patient was under observation, and the presence of streptococci in the blood, proved it to be of pyogenic origin. He regretted that he had not at once, in the second operation, trephined for cerebellar abscess, but gave cogent reasons for acting as he had done. Remarks were also made as to the difficulty in locating intracranial abscesses, and another case was related in which Mr. Waterhouse had first explored the cerebellum for an abscess which was situated in the temporo-sphenoidal lobe. This case fortunately also recovered.

StClair Thomson.

PHARYNX.

Chauveau.—*Contribution to the History of Pharyngeal Pathology during the Greco-Roman Period.* "Annales des Maladies de l'Oreille," etc., April, 1901.

A long and comprehensive article, whose purport is sufficiently indicated by the title. *MacLeod Yearsley.*

Elder, J. M.—*Carcinoma of the Pharynx, with Involvement of Cervical Glands in a Boy Fourteen Years of Age.* "Montreal Medical Journal," December, 1900.

This case is worthy of mention on account of its extreme rarity at so early an age. On first examination the extent of disease within the mouth could not be known, owing to fixation of the jaws from the enlarged cervical glands. The removal of part of the gland tissue for microscopical examination proved it to be scirrhus. Further examination within the mouth revealed a sessile involvement of most of the pharynx. The prognosis was hopeless. A peculiar feature was that the mother had symptoms of cancer when the boy was two years old, and died two years later. *Price-Brown.*

Kelly, A. Brown.—*Sclerotic Hyperplasia of the Pharynx and Naso-Pharynx.* "The Lancet," April 6, 1901.

The author believes the condition to be a hitherto undescribed pathological entity. The patient was a male, aged thirty-four, who had been subject to slight sore throat for about eight years, and for three years had felt some thickening in his throat. The case presented three striking features, namely, greatly enlarged uvula, a thick band descending in each half of the posterior wall of the pharynx, and thickening of the roof and floor of the naso-pharynx leading to a marked diminution of its lumen. In all the regions affected the morbid process is apparently the same, consisting in diffuse uniform thickening, which histologically proves to be a marked interstitial hyperplasia. The development of the disease has been very slow, and is probably still proceeding. In endeavouring to diagnose this condition several diseases have come under consideration.

1. *Rhinoscleroma.*—In this disease the naso-pharynx is the region most frequently involved, and its aspect may come to resemble that presented by the patient. In rhinoscleroma, however, the reduction in the lumen of the naso-pharynx is due to cicatricial contraction, and not, as here, to thickening of the tissues. Further, no description corresponding with the appearances of the uvula or posterior wall of the pharynx in this case could be found. The fact, also, that rhinoscleroma has been observed in this country only in persons who have come from districts in which the disease is endemic renders it highly improbable that the ailment is of this nature. Lastly, the absence of the specific bacillus and of Mikulicz's cells almost conclusively disproves rhinoscleroma.

2. *Tertiary Syphilis,* owing to the various aspects it may assume in the throat, naturally suggests itself. Inquiry as to the patient's previous health yields no indication of his ever having contracted venereal disease; besides, this morbid process differs from tertiary syphilis in its perfect symmetry, in the absence of any tendency to ulceration, and in its being uninfluenced by iodide of potassium.

3. *Hereditary Syphilis*.—Owing to the want of corroborative evidence in the personal and family history of the patient, and because of the general dissimilarity of his pharyngeal manifestations to those observed in hereditary syphilis, the author believes that this disease may be left out of account as an etiological factor.

While unable to find a disease of which the sclerotic hyperplasia in the man is a manifestation, an analogous condition probably exists in subglottic hypertrophic laryngitis. This affection is usually characterized by the presence of pinkish, smooth, firm, symmetrical folds beneath the vocal cords, which develop slowly, apparently in consequence of recurrent inflammatory attacks, during which they become more or less swollen. If we now turn to the case under discussion we find folds of thickened tissue in the pharynx presenting characters similar to those just mentioned; we get a clinical history of his having been subject to sore-throat for years, and of permanent symptoms due to hypertrophic changes having set in only at a comparatively recent date; examination during an inflammatory attack revealed marked swelling of part of the affected region; and lastly, A. Sokolowski's* account—which is probably the most detailed and thorough—of the histology of subglottic hypertrophic laryngitis might stand for that of the removed portion of the enlarged uvula, the sole difference being that in the present case the deeper layer of the epithelium is not thrown into papillæ, but presents practically an even continuous surface, the columnar character of the deepest cells of the rete Malpighii, however, being maintained.

Considerable discussion has taken place as to the nature of subglottic hypertrophic laryngitis. In most text-books the causes mentioned are tuberculosis, syphilis, and rhinoscleroma, the last being probably the commonest. Of 100 cases of scleroma recently reported by A. Baurowicz† thirty-four were affected with subglottic hypertrophic laryngitis. If the frequency of subglottic hypertrophic laryngitis in scleroma be coupled with its great rarity apart from this disease, it can be understood how certain observers who live where rhinoscleroma is prevalent—*e.g.*, P. Pieniazek‡ and Baurowicz of Cracow—and who consequently see subglottic hypertrophic laryngitis comparatively often, maintain that it is *always* a manifestation of scleroma. On the other hand, Sokolowski of Warsaw, who has also had an extensive experience of rhinoscleroma, denies this, and proves incontestably, as it seems to the author, that subglottic hypertrophic laryngitis may develop independently of scleroma, tuberculosis, and syphilis; he thinks that the morbid process is of a specific nature, the etiological factor being as yet unknown, but he suggests that hereditary syphilis may play a part. A. Kuttner§ reports a case of subglottic hypertrophic laryngitis in which there were no grounds for suspecting the presence of any of the infective diseases mentioned; he maintains, therefore, that this laryngeal condition may appear as an affection *sui generis*, which he proposes to term the genuine form of chorditis vocalis inferior hypertrophica. F. H. Bosworth|| also states that there can be

* "Ein Beitrag zur Pathologie und Therapie der chronischen hypertrophischen Kehlkopfentzündung," *Archiv für Laryngologie*, Band ii., S. 68; also Band iv., S. 239.

† "Das Sklerom auf Grund der Beobachtung von 100 Fällen," *Archiv für Laryngologie*, Band x., S. 396; "Zur Aetiologie der sogenannten Chorditis vocalis inferior hypertrophica," *Ibid.*, Band vii., S. 349.

‡ Heymann's "Handbuch der Laryngologie," Band i., S. 1305.

§ "Chorditis vocalis inferior hypertrophica," *Archiv für Laryngologie*, Band v., S. 275.

|| "A Treatise on Diseases of the Nose and Throat," vol. ii., p. 529.

no question of a simple idiopathic inflammatory process in the subglottic region giving rise to marked hypertrophy, but he thinks that in most instances a diathetic condition is present. There are thus good reasons for according to subglottic hypertrophic laryngitis independent rank amongst the diseases of the larynx.

The facts brought forward in this paper, if correctly interpreted, prove (1) that the pharynx and naso-pharynx may be the seat of a sclerotic hyperplasia unconnected with syphilis, rhinoscleroma, or other known infective disease; (2) that a similar morbid process may manifest itself beneath the vocal cords as subglottic hypertrophic laryngitis; and (3) that in the hyperplastic variety of hereditary syphilis the histological appearances closely resemble those of the above-described sclerotic hyperplasia.

StClair Thomson.

Texier, V.—*Dermoid Polypi of the Pharynx.* "La Presse Méd.," December 19, 1900.

The author first describes a case he had under observation, then discusses the pathogenesis, etc., of these growths.

The author's patient was an infant, in whom nothing abnormal had been noted till it was three months old. During a fit of coughing a pale-coloured tumour was projected out of the mouth, but disappeared again after a few acts of swallowing. The breathing was not at all embarrassed, and the child was well developed and appeared perfectly healthy. On opening the mouth, at first nothing abnormal was seen, but on strongly depressing the tongue a whitish, freely-movable tumour was seen descending behind the soft palate and occupying the whole right half of the pharynx. Coughing or retching forced the tumour into the mouth, where it lay on the tongue till it was swallowed again. When caught and pulled out of the mouth it reached about 3 centimetres beyond the commissure of the lips. It was at once apparent that the tumour was not covered with mucous membrane, but with skin with numerous fine hairs. The pedicle extended behind the soft palate, but the exact point of origin could not be determined, as neither posterior rhinoscopy nor palpation was possible in so young a child. It was removed with a cold snare as far back as possible. Hæmorrhage was insignificant. The tumour consisted of a long pedicle and a terminal enlargement; total length, $5\frac{1}{2}$ centimetres; weight 2·7 grammes. It consisted of a fatty tissue completely enclosed in what appeared to be ordinary skin about three quarters of a millimetre thick, but growing thinner towards the point of insertion.

Microscopic Examination.—Epidermis of variable thickness, the different strata not clearly differentiated. In the dermis were found very numerous hair-follicles, sebaceous glands, erectores pilorum, sudoriparous glands, arterioles, venules, capillaries, but no nervous elements were found in the body or terminal enlargement of the tumour. In the pedicle elements were found resembling non-medullated nerve fibres. There was also, in the pedicle, a large artery with its corresponding vein, this vascular axis being surrounded by two or three layers of striped muscular fibre. Near the root of the pedicle the skin suddenly gave place to a mucous membrane.

In medical literature the author has found eighteen similar cases recorded, exclusive of those growing from any part of the buccal cavity. These tumours all arise from some point in those parts of the pharynx which are developed around the first or second branchial clefts. Under

some unknown influence a bud, or inward growth, arises from the corresponding branchial arches. This bud is covered by the external layer of the blastoderm, therefore is covered with skin. The process is exactly analogous to that which gives rise to the little pedunculated cutaneous tumours in the vicinity of the auricle—likewise developed from the branchial arches.

The structure is simple; the covering is cutaneous, with hair, sudoriparous and sebaceous glands. Beneath this is a connective-tissue stroma, containing muscular fibres, vessels, and sometimes cartilage. The tumours may be accompanied by malformations, *e.g.*, cleft palate, etc.

The symptoms vary according to the position and size of the tumour, and may be marked from the first, or may be unnoticed till the twentieth or even thirtieth year. The colour is whitish, the shape that of a pedunculated polypus; the body of the polypus may grow to the size of a cherry, or even larger. They grow from some part of the naso-pharynx, *e.g.*, the orifice of the Eustachian tube, the posterior surface of the soft palate, the vault of the naso-pharynx, etc.

Diagnosis is easy. Treatment consists in extirpation, which may be done with a pair of scissors, a galvano-caustic, or a cold snare.

Arthur J. Hutchison.

THYROID, Etc.

Anderson, H. B.—*Case of Colloid Goitre, involving the Middle Lobe of the Thyroid Gland, associated with Asthmatic Attacks and resulting in Sudden Death.* "Canada Lancet," October, 1900.

The author states that he has been unable to find a similar case recorded in which the goitre was confined to the middle lobe. The occurrence of periodical attacks of urgent dyspnoea in so-called thyroid asthma is somewhat common, but must be more dangerous to life when the enlargement is limited to the central lobe, as in this case. The attacks of asthma were severe and the death not unexpected.

Price-Brown.

Christiani.—*Histology of Grafts of the Thyroid Gland in Reptiles.* "Revue Méd. de la Suisse Romande," December 20, 1900.

Grafts of thyroid gland transplanted from one reptile to another of the same species, or from the neck of one reptile to its peritoneum or under its skin, take well, and form functionally active glands. The rapidity with which the transplanted graft forms new vascular connections, and with which its epithelial cells begin to grow, depends on the species of reptile, and on the time of year at which the transplanting is done. Thus, in lizards and slow-worms reorganization of the graft is much more rapid than in snakes and vipers; it is also far more rapid in spring and summer, when the animal's organic life is most active, than in autumn and winter, when its life is almost suspended.

The author concludes that the thyroid gland of reptiles is capable of being transplanted, just as it is in mammals, and that the grafts, even long after the operation, present "all the morphological characters of the thyroid gland, without any tendency to atrophy."

Arthur J. Hutchison.

Thomas.—*Myxœdema and Adenoid Vegetations.* "Revue Hebdom. de Laryng., d'Otol. et de Rhinol.," December 1, 1900.

The patient was a child, about five years old, who had been under thyroid treatment for myxœdema during nearly two years. He was very badly developed, both physically and mentally. Adenoid vegetations were present. The question was asked whether the same or similar good results were to be expected from removal of adenoid growths from a myxœdematous child as are obtained in a healthy child. From previous experience ("Revue Hebdom. de Laryng.," 1899) Thomas answered in the affirmative. The operation was performed. The results, as regards the physical condition, were much the same as in an ordinary child, and the mental condition improved to a considerable degree.

Arthur J. Hutchison.

THERAPEUTICS.

Gray, Albert A.—*A Further Note on the Production of Local Anæsthesia in the Ear, Nose, and Throat.* "The Lancet," March 9, 1901.

In the *Lancet* of April 21, 1900, p. 1125, the author described a method by means of which the difficulty of obtaining local anæsthesia in the ear could be overcome. It consisted essentially in using a solution of cocaine in anilin oil and rectified spirit. As the method has been widely adopted both in this country and abroad, he describes some little improvements which allow the limits of its application to be considerably widened.

In regard to the physiological effects of this method a few words are required. He has not had any trouble himself with symptoms of intoxication, either by the anilin or by the cocaine, but has heard of two cases in which a little trouble resulted. One of these was a case evidently of cocaine intoxication, and the patient recovered in the course of an hour or two. The second case occurred in a patient aged six years. The solution was instilled into the meatus until the latter was full. In the course of an hour or so the patient's lips became blue, and slight gastric catarrh occurred, but no other symptoms were present, and the patient was well again in a few hours. As a matter of fact, beyond the peculiar blue colour of the lips, there was nothing alarming to note. Excepting these cases, neither of which occurred in his own practice, he has not seen or heard of any trouble with the solution.

A few words may be said in regard to the peculiar blue colour of the lips which sometimes occurs. Several of his patients have told him that an hour or two after the use of the solution their friends noticed this peculiar colour. No symptoms were present in any of the cases, and the patients would not have known about it had their attention not been drawn to it by their friends. It always passes off in the course of a few hours, and leaves no effects. This is due to the transformation of oxyhæmoglobin into methæmoglobin. Its occurrence may be avoided, if so desired, by limiting the dose to 20 minims for adults or adolescents and corresponding doses for children. As regards children, it must be remembered that they are said to stand cocaine badly.

StClair Thomson.

StClair Thomson.—*Poisoning from the External Use of Aniline Oil.*
Clinical Society of London (from the "Lancet," April 20, 1901).

Equal parts of aniline oil and rectified spirits having been recommended as a vehicle for cocaine in order to produce local anæsthesia in the ear,* Dr. Thomson prescribed a 10 per cent. solution of cocaine in this menstruum for a colleague suffering from furunculosis. A small pledget of cotton-wool moistened with this solution was used at bedtime and the patient slept well. Next morning, as the pain threatened to return, he again made use of the drops about 5 a.m. At 7.30 a.m., while still in bed, he quite accidentally noticed a peculiar blueness of his finger-nails, and his wife remarked that his face was also blue. The face and hands were found to be of a decided dark blue colour, and this was noticeable in the skin under the finger-nails and on the lips and tongue. There was no fever or mental disturbance. The pupils were normal. The respiration was quiet and easy. The pulse was small and somewhat increased in frequency, and when Dr. David Lees had examined the heart the left ventricle was enlarged to two finger-breadths outside the left nipple line. The patient had not previously had any heart trouble, and there was nothing discoverable in the heart or lungs to account for the cyanosis. It was therefore ascribed to the toxic effect of the aniline oil on the red corpuscles. The blue colour gradually disappeared in the course of the day. The area of cardiac dulness again became normal, and no murmur was discoverable. Reference was made to a communication made to the Académie de Médecine in July last by M. Landouzy and M. Georges Brouardel describing the cases of ten children who were seized with prostration, pallor, and blueness soon after wearing yellow shoes which had recently been coated with a pigment found to contain 90 per cent. of aniline. When this dye was applied to the shaven surface of the skin of guinea-pigs and rabbits they died asphyxiated in from twenty-four to thirty hours. Some unpublished cases of Dr. Kelynack described similar symptoms, together with gastro-intestinal catarrh and anæmia in chronic cases, among those employed in aniline works. Evidently the skin readily absorbed aniline, and this might give rise to alarming symptoms which could not otherwise be explicable.—Dr. Charles W. Chapman said that he was the patient whose case had been described, and remarked that the most important point seemed to be the cardiac dilatation, which had called for prolonged rest. Unless this were remembered in future cases, a patient by getting about too soon might inflict permanent damage on the dilated heart. He also remarked upon the smallness of the dose.—Dr. Lewis G. Glover, alluding to Dr. Thomson's remark that the symptoms reminded him of poisoning by antipyrin, asked whether any cardiac dilatation had been noticed in this connection. He referred to a case in which large doses of exalgin had been taken, and he had noticed marked blueness but no cardiac dilatation. — Dr. StClair Thomson, in reply, said that in a case of antipyrin-poisoning he had noted some cardiac dilatation, but, as the patient was suffering from typhoid fever, the dilatation might possibly have been caused by the fever.

StClair Thomson.

* Dr. A. A. Gray, *The Lancet*, April 21, 1900, p. 1125.

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- P. Watson Williams, M.D. Lond.**—*Diseases of the Upper Respiratory Tract.* Parts I. and II. *The Nose, Pharynx, and Larynx.* Bristol: J. Wright and Co. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. 1901.
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THE COMBATING OF TUBERCULOSIS IN THE LIGHT OF THE
EXPERIENCE THAT HAS BEEN GAINED IN THE SUCCESS-
FUL COMBATING OF OTHER INFECTIOUS DISEASES.¹

BY GEH. MED.-RATH PROFESSOR DR. ROBERT KOCH,

Direktor des Instituts für Infektions Krankheiten in Berlin.

THE task with which this Congress will have to busy itself is one of the most difficult, but it is also one in which labour is most sure of its reward.

I need not point again to the innumerable victims tuberculosis annually claims in all countries, nor to the boundless misery it brings on the families it attacks. You all know that there is no disease which inflicts such deep wounds on mankind as this. All the greater, however, would be the general joy and satisfaction if the efforts that are being made to rid mankind of this enemy, which consumes its inmost marrow, were crowned with success.

There are many, indeed, who doubt the possibility of successfully combating this disease, which has existed for thousands of years, and has spread all over the world. This is by no means my opinion. This is a conflict into which we may enter with a surely founded prospect of success, and I will tell you the reasons on which I base this conviction.

Only a few decades ago the real nature of tuberculosis was unknown to us; it was regarded as a consequence, as the expres-

¹ An address delivered before the British Congress on Tuberculosis for the Prevention of Consumption, July 23, 1901.

sion, so to speak, of social misery, and, as this supposed cause could not be got rid of by simple means, people relied on the probable gradual improvement of social conditions, and did nothing. All this is altered now. We know that social misery does indeed go far to foster tuberculosis, but the real cause of the disease is a parasite—that is, a visible and palpable enemy, which we can pursue and annihilate, just as we can pursue and annihilate other parasitic enemies of mankind.

Strictly speaking, the fact that tuberculosis is a preventable disease ought to have become clear as soon as the tubercle bacillus was discovered and the properties of this parasite and the manner of its transmission became known. I may add that I, for my part, was aware of the full significance of this discovery from the first, and so will everybody have been who had convinced himself of the causal relation between tuberculosis and the tubercle bacillus. But the strength of a small number of medical men was inadequate to the conflict with a disease so deeply rooted in our habits and customs. Such a conflict requires the co-operation of many, if possible of all, medical men, shoulder to shoulder with the State and the whole population; but now the moment when such co-operation is possible seems to have come. I suppose there is hardly any medical man now who denies the parasitic nature of tuberculosis, and among the non-medical public, too, the knowledge of the nature of the disease has been widely propagated.

Another favourable circumstance is that success has recently been achieved in the combating of several parasitic diseases, and that we have learned from these examples how the conflict with pestilences is to be carried on.

The most important lesson we have learned from the said experience is that it is a great blunder to treat pestilences uniformly. This was done in former times; no matter whether the pestilence in question was cholera, plague, or leprosy; isolation, quarantine, useless disinfection were always resorted to. But now we know that every disease must be treated according to its own special individuality, and that the measures to be taken against it must be most accurately adapted to its special nature—to its etiology. We are entitled to hope for success in combating tuberculosis only if we keep this lesson constantly in view. As so extremely much depends just on this point, I shall take the liberty to illustrate it by several examples.

The pestilence which is at this moment in the foreground of interest—the bubonic plague—may be instructive to us in several respects.

People used to act upon the conviction that a plague patient was in the highest degree a centre of infection, and that the disease was transmitted only by plague patients and their belongings. Even the most recent international agreements are based on this conviction. Although, as compared with formerly, we now have the great advantage that we can, with the aid of the microscope and of experiments on animals, recognise every case of plague with absolute certainty, and although the prescribed inspection of ships, quarantine, the isolation of patients, the disinfection of infected dwellings and ships are carried out with the utmost care, the plague has, nevertheless, been transmitted everywhere, and has in not a few places assumed grave dimensions. Why this has happened we know very well, owing to the experience quite recently gained as to the manner in which the plague is transmitted. It has been discovered that only those plague patients that suffer from plague-pneumonia—a condition which is fortunately infrequent—are centres of infection, and that the real transmitters of the plague are the rats. There is no longer any doubt that, in by far the majority of the cases in which the plague has been transmitted by ocean traffic, the transmission took place by means of plague among the ship rats. It has also been found that, wherever the rats were intentionally or unintentionally exterminated, the plague rapidly disappeared; whereas at other places, where too little attention had been paid to the rat plague, the pestilence continued. This connection between the human plague and the rat plague was totally unknown before, so that no blame attaches to those who devised the measures now in force against the plague if the said measures have proved unavailing. It is high time, however, that this enlarged knowledge of the etiology of the plague be utilized in international as well as in other traffic. As the human plague is so dependent on the rat plague, it is intelligible that protective inoculation and the application of antitoxic serum have had so little effect. A certain number of human beings may have been saved from the disease by that, but the general spread of the pestilence has not been hindered in the least.

With cholera the case is essentially different; it may, under certain circumstances, be transmitted directly from human beings to other human beings, but its main and most dangerous propagator is water, and therefore, in the combating of cholera, water is the first thing to be considered. In Germany, where this principle has been acted on, we have succeeded for four years in regularly exterminating the pestilence (which was introduced again

and again from the infected neighbouring countries) without any obstruction of traffic.

Hydrophobia, too, is not void of instruction for us. Against this disease the so-called protective inoculation proper has proved eminently effective as a means of preventing the outbreak of the disease in persons already infected; but of course such a measure can do nothing to prevent infection itself. The only real way of combating this pestilence is by compulsory muzzling. In this matter also we have had the most satisfactory experience in Germany, but have at the same time seen that the total extermination of the pestilence can be achieved only by international measures, because hydrophobia, which can be very easily and rapidly suppressed, is always introduced again year after year from the neighbouring countries.

Permit me to mention only one other disease, because it is etiologically very closely akin to tuberculosis, and we can learn not a little for the furtherance of our aims from its successful combating. I mean leprosy. It is caused by a parasite which greatly resembles the tubercle bacillus. Just like tuberculosis, it does not break out till long after infection, and its course is almost slower. It is transmitted only from person to person, but only when they come into close contact, as in small dwellings and bedrooms. In this disease, accordingly, immediate transmission plays the main part; transmission by animals, water, or the like is out of the question. The combative measures, accordingly, must be directed against this close intercourse between the sick and the healthy. The only way to prevent this intercourse is to isolate the patients. This was most rigorously done in the Middle Ages by means of numerous leper-houses, and the consequence was that leprosy, which had spread to an alarming extent, was completely stamped out in Central Europe. The same method has been adopted quite recently in Norway, where the segregation of lepers has been ordered by a special law. But it is extremely interesting to see how this law is carried out. It has been found that it is not at all necessary to execute it strictly, for the segregation of only the worst cases, and even of only a part of these, sufficed to produce a diminution of leprosy. Only so many infectious cases had to be sent to the leper-houses that the number of fresh cases kept regularly diminishing from year to year. Consequently the stamping out of the disease has lasted much longer than it would have lasted if every leper had been inexorably consigned to a leper-house, as in the Middle Ages; but in this way, too, the same purpose is gained, slowly indeed, but without any harshness.

These examples may suffice to show what I am driving at, which is to point out that, in combating pestilences, we must strike at the root of the evil, and must not squander force in subordinate ineffective measures. Now, the question is, whether what has hitherto been done, and what is about to be done, against tuberculosis really strikes at the root of tuberculosis, so that it must sooner or later die.

In order to answer this question it is necessary first and foremost to inquire how infection takes place in tuberculosis. Of course, I presuppose that we understand by tuberculosis only those morbid conditions which are caused by the tubercle bacillus.

In by far the majority of cases of tuberculosis the disease has its seat in the lungs, and has also begun there. From this fact it is justly concluded that the germs of the disease, *i.e.*, the tubercle bacilli, must have got into the lungs by inhalation. As to the question where the inhaled tubercle bacilli have come from there is also no doubt. On the contrary, we know with certainty that they get into the air with the sputum of consumptive patients. This sputum, especially in advanced stages of the disease, almost always contains tubercle bacilli, sometimes in incredible quantities. By coughing, and even speaking, it is flung into the air in little drops, *i.e.*, in a moist condition, and can at once infect persons who happen to be near the coughers. But then it may also be pulverized when dried, in the linen or on the floor, for instance, and get into the air in the form of dust.

In this manner a complete circle, a so-called *circulus vitiosus*, has been formed for the process of infection, from the diseased lung, which produces phlegm and pus containing tubercle bacilli, to the formation of moist and dry particles (which, in virtue of their smallness, can keep floating a good while in the air), and finally to new infection, if particles penetrate with the air into a healthy lung and originate the disease anew. But the tubercle bacilli may get to other organs of the body in the same way, and thus originate other forms of tuberculosis. This, however, is a considerably rarer case. The sputum of consumptive people, then, is to be regarded as the main source of the Infection of tuberculosis. On this point, I suppose, all are agreed. The question now arises whether there are not other sources, too, copious enough to demand consideration in the combating of tuberculosis.

Great importance used to be attached to the hereditary transmission of tuberculosis. Now, however, it has been demonstrated by thorough investigation that, though hereditary tuberculosis is not absolutely non-existent, it is, nevertheless, extremely rare, and

we are at liberty, in considering our practical measures, to leave this form of origination entirely out of account.

But another possibility of tubercular infection exists, as is generally assumed, in the transmission of the germs of the disease from tubercular animals to man. This manner of infection is generally regarded nowadays as proved, and as so frequent that it is even looked upon by not a few as the most important, and the most rigorous measures are demanded against it. In this Congress also the discussion of the danger with which the tuberculosis of animals threatens man will play an important part. Now, as my investigations have led me to form an opinion deviating from that which is generally accepted, I beg your permission, in consideration of the great importance of this question, to discuss it a little more thoroughly.

Genuine tuberculosis has hitherto been observed in almost all domestic animals, and most frequently in poultry and cattle. The tuberculosis of poultry, however, differs so much from human tuberculosis that we may leave it out of account as a possible source of Infection for man. So, strictly speaking, the only kind of animal tuberculosis remaining to be considered is the tuberculosis of cattle, which, if really transferable to man, would indeed have frequent opportunities of infecting human beings through the drinking of the milk and the eating of the flesh of diseased animals.

Even in my first circumstantial publication on the etiology of tuberculosis I expressed myself regarding the identity of human tuberculosis and bovine tuberculosis with reserve. Proved facts which would have enabled me sharply to distinguish these two forms of the disease were not then at my disposal, but sure proofs of their absolute identity were equally undiscoverable, and I therefore had to leave this question undecided. In order to decide it, I have repeatedly resumed the investigations relating to it; but so long as I experimented on small animals, such as rabbits and guinea-pigs, I failed to arrive at any satisfactory result, though indications which rendered the difference of the two forms of tuberculosis probable were not wanting. Not till the complaisance of the Ministry of Agriculture enabled me to experiment on cattle, the only animals really suitable for these investigations, did I arrive at absolutely conclusive results. Of the experiments which I have carried out during the last two years, along with Professor Schütz, of the Veterinary College in Berlin, I will tell you briefly some of the most important.

A number of young cattle which had stood the tuberculin test, and might therefore be regarded as free from tuberculosis, were

infected in various ways with pure cultures of tubercle bacilli taken from cases of human tuberculosis; some of them got the tubercular sputum of consumptive patients direct. In some cases the tubercle bacilli or the sputum were injected under the skin, in others into the peritoneal cavity, in others into the jugular vein. Six animals were fed with tubercular sputum almost daily for seven or eight months; four repeatedly inhaled great quantities of bacilli, which were distributed in water, and scattered with it in the form of spray. None of these cattle (there were nineteen of them) showed any symptoms of disease, and they gained considerably in weight. From six to eight months after the beginning of the experiments they were killed. In their internal organs not a trace of tuberculosis was found. Only at the places where the injections had been made small suppurative foci had formed, in which few tubercle bacilli could be found. This is exactly what one finds when one injects dead tubercle bacilli under the skin of animals liable to contagion. So the animals we experimented on were affected by the living bacilli of human tuberculosis exactly as they would have been by dead ones; they were absolutely insusceptible to them.

The result was utterly different, however, when the same experiment was made on cattle free from tuberculosis with tubercle bacilli that came from the lungs of an animal suffering from bovine tuberculosis. After an incubation period of about a week, the severest tubercular disorders of the internal organs broke out in all the infected animals. It was all one whether the infecting matter had been injected only under the skin or into the peritoneal cavity or the vascular system. High fever set in, and the animals became weak and lean; some of them died after a month and a half to two months, others were killed in a miserably sick condition after three months. After death extensive tubercular infiltrations were found at the place where the injections had been made, and in the neighbouring lymphatic glands, and also far advanced alterations of the internal organs, especially the lungs and the spleen. In the cases in which the injection had been made into the peritoneal cavity, the tubercular growths which are so characteristic of bovine tuberculosis were found on the omentum and peritoneum. In short, the cattle proved just as susceptible to Infection by the bacillus of bovine tuberculosis as they had proved insusceptible to Infection by the bacillus of human tuberculosis. I wish only to add that preparations of the organs of the cattle which were artificially infected with bovine tuberculosis in these experiments are exhibited in the Museum of Pathology and Bacteriology.

An almost equally striking distinction between human and

bovine tuberculosis was brought to light by a feeding experiment with swine. Six young swine were fed daily for three months with the tubercular sputum of consumptive patients. Six other swine received bacilli of bovine tuberculosis with their food daily for the same period. The animals that were fed with sputum remained healthy and grew lustily, whereas those that were fed with the bacilli of bovine tuberculosis soon became sickly, were stunted in their growth, and half of them died. After three months and a half, the surviving swine were all killed and examined. Among the animals that had been fed with sputum no trace of tuberculosis was found, except here and there little nodules in the lymphatic glands of the neck, and in one case a few gray nodules in the lungs. The animals, on the other hand, which had eaten bacilli of bovine tuberculosis had, without exception (just as in the cattle experiment), severe tubercular diseases, especially tubercular infiltration of the greatly-enlarged lymphatic glands of the neck and of the mesenteric glands, and also extensive tuberculosis of the lungs and the spleen.

The difference between human and bovine tuberculosis appeared not less strikingly in a similar experiment with asses, sheep, and goats, into whose vascular systems the two kinds of tubercle bacilli were injected.

Our experiments, I must add, are not the only ones that have led to this result. If one studies the older literature of the subject, and collates the reports of the numerous experiments that were made in former times by Chauveau, Günther and Harms, Bollinger, and others, who fed calves, swine, and goats with tubercular material, one finds that the animals that were fed with the milk and pieces of the lungs of tubercular cattle always fell ill of tuberculosis, whereas those that received human material with their food did not. Comparative investigations regarding human and bovine tuberculosis have been made very recently in North America by Smith, Dinwiddie, and Frothingham, and their result agreed with that of ours. The unambiguous and absolutely conclusive result of our experiments is due to the fact that we chose methods of infection which exclude all sources of error, and carefully avoided everything connected with the stalling, feeding, and tending of the animals that might have a disturbing effect on the experiments.

Considering all these facts, I feel justified in maintaining that human tuberculosis differs from bovine, and cannot be transmitted to cattle. It seems to me very desirable, however, that these experiments should be repeated elsewhere, in order that all doubt as to the correctness of my assertion may be removed.

I wish only to add that, owing to the great importance of this matter, the German Government has appointed a commission to make further inquiries on the subject.

But, now, how is it with the susceptibility of man to bovine tuberculosis? This question is far more important to us than that of the susceptibility of cattle to human tuberculosis, highly important as that is too. It is impossible to give this question a direct answer, because, of course, the experimental investigation of it with human beings is out of the question. Indirectly, however, we can try to approach it. It is well known that the milk and butter consumed in great cities very often contain large quantities of the bacilli of bovine tuberculosis in a living condition, as the numerous infection-experiments with such dairy products on animals have proved. Most of the inhabitants of such cities daily consume such living and perfectly virulent bacilli of bovine tuberculosis, and unintentionally carry out the experiment which we are not at liberty to make. If the bacilli of bovine tuberculosis were able to infect human beings, many cases of tuberculosis caused by the consumption of alimenta containing tubercle-bacilli could not but occur among the inhabitants of great cities, especially the children. And most medical men believe that this is actually the case.

In reality, however, it is not so. That a case of tuberculosis has been caused by alimenta can be assumed with certainty only when the intestine suffers first, *i.e.*, when a so-called primary tuberculosis of the intestine is found. But such cases are extremely rare. Among many cases of tuberculosis examined after death, I myself remember having seen primary tuberculosis of the intestine only twice. Among the great post-mortem material of the Charité Hospital in Berlin ten cases of primary tuberculosis of the intestine occurred in five years. Among 933 cases of tuberculosis in children at the Emperor and Empress Frederick's Hospital for Children, Baginsky never found tuberculosis of the intestine without simultaneous disease of the lungs and the bronchial glands. Among 3,104 post-mortems of tubercular children, Biedert observed only sixteen cases of primary tuberculosis of the intestine. I could cite from the literature of the subject many more statistics of the same kind, all indubitably showing that primary tuberculosis of the intestine, especially among children, is a comparatively rare disease, and of these few cases that have been enumerated, it is by no means certain that they were due to infection by bovine tuberculosis. It is just as likely that they were caused by the widely propagated bacilli of human tuberculosis, which may have got into

the digestive canal in some way or other—for instance, by swallowing saliva of the mouth. Hitherto nobody could decide with certainty in such a case whether the tuberculosis of the intestine was of human or of animal origin. Now we can diagnose them. All that is necessary is to cultivate in pure culture the tubercle bacilli found in the tubercular material, and to ascertain whether they belong to bovine tuberculosis by inoculating cattle with them. For this purpose I recommend subcutaneous injection, which yields quite specially characteristic and convincing results. For half a year past I have occupied myself with such investigations, but, owing to the rareness of the disease in question, the number of the cases I have been able to investigate is but small. What has hitherto resulted from this investigation does not speak for the assumption that bovine tuberculosis occurs in man.

Though the important question whether man is susceptible to bovine tuberculosis at all is not yet absolutely decided, and will not admit of absolute decision to-day or to-morrow, one is nevertheless already at liberty to say that, if such a susceptibility really exists, the infection of human beings is but a very rare occurrence. I should estimate the extent of infection by the milk and flesh of tubercular cattle, and the butter made of their milk, as hardly greater than that of hereditary transmission, and I therefore do not deem it advisable to take any measures against it.

So the only main source of the Infection of tuberculosis is the sputum of consumptive patients, and the measures for the combating of tuberculosis must aim at the prevention of the dangers arising from its diffusion. Well, what is to be done in this direction? Several ways are open. One's first thought might be to consign all persons suffering from tuberculosis of the lungs, whose sputum contains tubercle bacilli, to suitable establishments. This, however, is not only absolutely impracticable, but also unnecessary. For a consumptive who coughs out tubercle bacilli is not necessarily a source of Infection on that account, so long as he takes care that his sputum is properly removed and rendered innocuous. This is certainly true of very many patients, especially in the first stages, and also of those who belong to the well-to-do classes, and are able to procure the necessary nursing. But how is it with people of very small means? Every medical man who has often entered the dwellings of the poor, and I can speak on this point from my own experience, knows how sad is the lot of consumptives and their families there. The whole family have to live in one or two small, ill-ventilated rooms. The patient is left without the nursing he needs, because the able-bodied members of the family must go to

their work. How can the necessary cleanliness be secured under such circumstances? How is such a helpless patient to remove his sputum so that it may do no harm? But let us go a step further and picture the condition of a poor consumptive patient's dwelling at night. The whole family sleep crowded together in one small room. However cautious he may be, the sufferer scatters the morbid matter secreted by his diseased lungs every time he coughs, and his relatives close beside him must inhale this poison. Thus whole families are infected. They die out, and awaken in the minds of those who do not know the infectiousness of tuberculosis the opinion that it is hereditary, whereas its transmission in the cases in question was due solely to the simplest processes of infection, which do not strike people so much, because the consequences do not appear at once, but generally only after the lapse of years.

Often, under such circumstances, the Infection is not restricted to a single family, but spreads in densely inhabited tenement-houses to the neighbours, and then, as the admirable investigations of Biggs have shown in the case of the densely peopled parts of New York, regular nests or foci of disease are formed. But, if one investigates these matters more thoroughly, one finds that it is not poverty *per se* that favours tuberculosis, but the bad domestic conditions under which the poor everywhere, but especially in great cities, have to live. For, as the German statistics show, tuberculosis is less frequent, even among the poor, when the population is not densely packed together, and may attain very great dimensions among a well-to-do population when the domestic conditions, especially as regards the bedrooms, are bad, as is the case, for instance, among the inhabitants of the North Sea coast. So it is the overcrowded dwellings of the poor that we have to regard as the real breeding-places of tuberculosis; it is out of them that the disease always crops up anew, and it is to the abolition of these conditions that we must first and foremost direct our attention if we wish to attack the evil at its root, and to wage war against it with effective weapons.

This being so, it is very gratifying to see how efforts are being made in almost all countries to improve the domestic conditions of the poor. I am also convinced that these efforts, which must be promoted in every way, will lead to a considerable diminution of tuberculosis. But a long time must elapse ere essential changes can be effected in this direction, and much may be done meanwhile in order to reach the goal much more rapidly.

If we are not able at present to get rid of the danger which small and overcrowded dwellings involve, all we can do is to remove

the patients from them, and, in their own interests and that of the people about them, to lodge them better; and this can be done only in suitable hospitals. But the thought of attaining this end by compulsion of any kind is very far from me; what I want is that the consumptives may be enabled to obtain the nursing they need better than they can obtain it now. At present a consumptive in an advanced stage of the disease is regarded as incurable, and as an unsuitable inmate for a hospital. The consequence is that he is reluctantly admitted, and dismissed as soon as possible. The patient, too, when the treatment seems to him to produce no improvement, and the expenses, owing to the long duration of his illness, weigh heavily upon him, is himself animated by the wish to leave the hospital soon. That would be altogether altered if we had special hospitals for consumptives, and if the patients were taken care of there for nothing, or at least at a very moderate rate. To such hospitals they would willingly go; they could be better treated and cared for there than is now the case. I know very well that the execution of the project will have great difficulties to contend with, owing to the considerable outlay it entails. But very much would be gained if, at least in the existing hospitals, which have to admit a great number of consumptives at any rate, special wards were established for them, in which pecuniary facilities would be offered them. If only a considerable fraction of the whole number of consumptives were suitably lodged in this way, a diminution of infection and consequently of the sum-total of tuberculosis could not fail to be the result. Permit me to remind you in this connection of what I said about leprosy. In the combating of that disease also great progress has already been made by lodging only a fair number of the patients in hospitals. The only country that possesses a considerable number of special hospitals for tubercular patients is England, and there can be no doubt that the diminution of tuberculosis in England, which is much greater than in any other country, is greatly due to this circumstance. I should point to the founding of special hospitals for consumptives and the better utilization of the already existing hospitals for the lodging of consumptives as the most important measure in the combating of tuberculosis, and its execution opens a wide field of activity to the State, to municipalities, and to private benevolence. There are many people who possess great wealth, and would willingly give of their superfluity for the benefit of their poor and heavily afflicted fellow-creatures, but do not know how to do this in a judicious manner. Here is an opportunity for them to render a real and lasting service by founding consumption hospitals or purchasing

the right to have a certain number of consumptive patients maintained in special wards or other hospitals free of expense.

As, however, unfortunately, the aid of the State, the municipalities, and rich benefactors will probably not be forthcoming for a long time yet, we must for the present resort to other measures that may pave the way for the main measure just referred to, and serve as a supplement and temporary substitute for it.

Among such measures I regard obligatory notification as specially valuable. In the combating of all infectious diseases it has proved indispensable as a means of obtaining certain knowledge as to their state, especially their dissemination, their increase and decrease. In the conflict with tuberculosis also we cannot dispense with obligatory notification; we need it not only in order to inform ourselves as to the dissemination of this disease, but mainly in order to learn where help and instruction can be given, and especially where the disinfection which is so urgently necessary when consumptives die or change their residences has to be effected. Fortunately it is not at all necessary to notify all cases of tuberculosis, nor even all cases of consumption, but only those that, owing to the domestic conditions, are sources of danger to the people about them. Such limited notification has already been introduced in various places: in Norway, for instance, by a special law; in Saxony, by a ministerial decree; in New York and in several American towns, which have followed its example. In New York, where notification was optional at first and was afterwards made obligatory, it has proved eminently useful. It has thus been proved that the evils which it used to be feared the introduction of notification for tuberculosis would bring about need not occur, and it is devoutly to be wished that the examples I have named may very soon excite emulation everywhere.

There is another measure, closely connected with notification, viz., disinfection, which, as already mentioned, must be effected when consumptives die or change their residence, in order that those who next occupy the infected dwelling may be protected against infection. Moreover, not only the dwellings but also the infected beds and clothes of consumptives ought to be disinfected.

A further measure, already recognised on all hands as effective, is the instructing of all classes of the people as to the infectiousness of tuberculosis, and as to the best way of protecting one's self. The fact that tuberculosis has considerably diminished in almost all civilized States of late is attributable solely to the circumstance that knowledge of the contagious character of tuberculosis has been more and more widely disseminated, and that caution in intercourse with

consumptives has increased more and more in consequence. If better knowledge of the nature of tuberculosis has alone sufficed to prevent a large number of cases, this must serve us as a significant admonition to make the greatest possible use of this means, and to do more and more to bring it about that everybody may know the dangers that threaten him in intercourse with consumptives. It is only to be desired that the instructions may be made shorter and more precise than they generally are, and that special emphasis be laid on the avoidance of the worst danger of infection, which is the use of bedrooms and small ill-ventilated workrooms simultaneously with consumptives. Of course, the instructions must include directions as to what consumptives have to do when they cough, and how they are to treat their sputum.

Another measure, which has come into the foreground of late, and which at this moment plays to a certain extent a paramount part in all efforts for the combating of tuberculosis, works in quite another direction, I mean the founding of sanatoria for consumptives.

That tuberculosis is curable in its early stages must be regarded as an undisputed fact. The idea of curing as many tubercular patients as possible in order to reduce the number of those that reach the infectious stage of consumption, and thus to reduce the number of fresh cases, was therefore a very natural one. The only question is whether the number of persons cured in this way will be great enough to exercise an appreciable influence on the retrogression of tuberculosis. I will try to answer this question in the light of the figures at my disposal.

According to the business report of the German Central Committee for the Establishment of Sanatoria for the Cure of Consumptives, about 5,500 beds will be at the disposal of these institutions by the end of 1901, and then, if we assume that the average stay of each patient will be three months, it will be possible to treat at least 20,000 patients every year. From the reports hitherto issued as to the results that have been achieved in the establishments we learn further that about 20 per cent. of the patients that have tubercle bacilli in their sputum lose them by the treatment there. This is the only sure test of success, especially as regards prophylaxis. If we make this the basis of our estimates, we find that 4,000 consumptives will leave these establishments annually as cured. But, according to the statistics ascertained by the German Imperial Office of Health, there are 226,000 persons in Germany over fifteen years of age who are so far gone in consumption that hospital treatment is necessary for them. Compared with

this great number of consumptives the success of the establishments in question seems so small that a material influence on the retrogression of tuberculosis in general is not yet to be expected of them. But pray do not imagine that I wish, by this calculation of mine, to oppose the movement for the establishment of such sanatoria in any way. I only wish to warn against the over-estimating of their importance which has recently been observable in various quarters, based apparently on the opinion that the war against tuberculosis can be waged by means of sanatoria alone, and that other measures are of subordinate value. In reality the contrary is the case. What is to be achieved by the general prophylaxis resulting from recognition of the danger of infection and the consequent greater caution in intercourse with consumptives is shown by a calculation of Cornet's regarding the decrease of mortality from tuberculosis in Prussia in the years 1889 to 1897. Before 1889 the average was 31.4 per 10,000, whereas in the period named it sank to 21.8, which means that, in that short space of time, the number of deaths from tuberculosis was 184,000 less than was to be expected from the average of the preceding years. In New York, under the influence of the general sanitary measures directed in a simply exemplary manner by Biggs, the mortality from tuberculosis has diminished by more than 35 per cent. since 1886. And it must be remembered that both in Prussia and New York the progress indicated by these figures is due to the first beginnings of these measures. Considerably greater success is to be expected of their further development. Biggs hopes to have got so far in five years that in the city of New York alone the annual number of deaths from tuberculosis will be 3,000 less than formerly. I take this opportunity of most urgently recommending Dr. Biggs' organization to the study and imitation of all municipal sanitary authorities.

Now, I do indeed believe that it will be possible to render the sanatoria considerably more efficient. If strict care be taken that only patients be admitted for whom the treatment of those establishments is well adapted, and if the duration of the treatment be prolonged, it will certainly be possible to cure fifty per cent., and perhaps still more. But even then, and even if the number of the sanatoria be greatly increased, the total effect will always remain but moderate. The sanatoria will never render the other measures I have mentioned superfluous. If their number become great, however, and if they perform their functions properly, they may materially aid the strictly sanitary measures in the conflict with tuberculosis.

If now, in conclusion, we glance back once more to what has

been done hitherto for the combating of tuberculosis, and forward to what has still to be done, we are at liberty to declare with a certain satisfaction that very promising beginnings have already been made. Among these I reckon the consumption hospitals of England, the legal regulations regarding notification in Norway and Saxony, the organization created by Biggs in New York, the sanatoria, and the instruction of the people. All that is necessary is to go on developing these beginnings, to test, and if possible to increase their influence on the diminution of tuberculosis, and wherever nothing has yet been done, to do likewise.

If we are continually guided in this enterprise by the spirit of genuine preventive medical science; if we utilize the experience gained in conflict with other pestilences, and aim, with clear recognition of the purpose and resolute avoidance of wrong roads at striking the evil at its root, then the battle against tuberculosis, which has been so energetically begun, cannot fail to have a victorious issue.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

Sixty-seventh Ordinary Meeting, June 7, 1901.

E. CRESSWELL BABER, M.B., *President, in the Chair.*

THE following cases and specimens were shown :

Case of Ulceration of the Larynx (! Tuberculosis) in a Male aged Forty-eight. Shown by Dr. DE HAVILLAND HALL.

The patient was first seen on April 30, 1901, when he complained of hoarseness. He was in the army thirteen years, and has been in India, Canada, Egypt, and South Africa. The only previous illness he has had was enteric fever in 1882. No history of venereal disease can be obtained. The patient lost his voice twelve months ago, but he had no treatment until last April. He has had a cough and some expectoration, but no hæmoptysis. He has lost weight. There has been thickening and ulceration of both vocal cords and interarytænoid commissure. There has also been some ulceration on the laryngeal aspect of the epiglottis. There are physical signs of consolidation with râles at both apices, and a few tubercle bacilli have been found in the sputum.

Under the injunction of blue ointment and the administration of

potassium iodide—20 grains three times a day—there has been considerable subjective improvement, but very little objective alteration in the larynx.

Dr. STCLAIR THOMSON was of opinion, from an inspection only of the larynx, that it was a case of tuberculous ulceration in a syphilitic subject, who had probably had pachydermia, and had now contracted tuberculosis of the larynx.

Dr. DE HAVILLAND HALL said this was precisely the view he took of the case when it was in hospital, though he was unable to obtain any history of syphilis. In spite of inunctions of mercury and iodide of potassium internally, there had been very little alteration in the appearance of the larynx as seen by the laryngoscope. At the present time, however, the patient breathed much more comfortably than he did when first seen.

Case of a Malignant Laryngeal Growth in a Man aged Fifty-two.
Shown by Dr. STCLAIR THOMSON.

This patient complains of hoarseness coming on slowly for the last two and a half months. He attributes it to repeated colds since January, so that we may take it that the laryngeal affection dates from at least five months ago.

His voice is now reduced to a hoarse whisper. The anterior four-fifths of the right cord is occupied by an oblong growth with an irregular mammillated surface; the tips of some of these excrescences present the white snow-like surface which has been referred to at previous meetings of the Society in connection with the question of malignant disease. The anterior third of the left cord is also infiltrated, and shows one or two of these white-tipped mammillæ. The posterior part of the same cord appears as if indented by the larger growth on the right cord. Both cords move, but while the left moves freely, the right is decidedly limited in its excursions.

There is nothing in the patient's history to arouse a suspicion of lues. He has no cough, expectoration, or hæmoptysis. The temperature is normal, the pulse is not hurried, and the chest sounds are normal. He has taken 5 grains of iodide of potassium with some liquor hydrargyri perchloridi since May 25 without any apparent effect.

Dr. Thomson inquired whether the condition was due to malignant disease, whether the diagnosis could be made with sufficient certainty without recourse to removing a portion for microscopic examination, and whether the case was suitable for operation by laryngo-fissure.

Mr. SPENCER thought it was malignant, and now bilateral owing to infection from the opposite side. In his opinion it required early and extensive operation.

Mr. WAGGETT asked Dr. StClair Thomson if he contemplated performing thyrotomy, and if so, would he bring the case before the Society when he had done so? He presumed thyrotomy should be undertaken as an exploratory measure.

Dr. STCLAIR THOMSON said he thought of performing a thyrotomy, and he wished to know whether members present thought the diagnosis could be positively made without recourse to the excision of a piece of the growth. He himself thought removal of a portion was unnecessary, for if the examination was negative it would not alter their present opinion. Before proceeding to a thyrotomy he should like to know how freely one might remove the parts when both cords were affected. Of course, one might scoop out very freely the whole of one side of the interior of the larynx. Could one be as free on the other side without fear of stenosis? He had had one case in which the whole of one of the cords right up to the arytenoid was removed, and the anterior fourth of the opposite cord as well, but in the present case it seemed to him that not only the whole cord originally affected, but two-thirds of the opposite cord required removal; if at the exploratory operation he found this was so, would it be safe to carry it out?

Sir FELIX SEMON said that he had several times found it necessary to excise both vocal cords, and that no subsequent stenosis had resulted. He did not think that such an event was to be feared. He quite agreed with Mr. Spencer that in all probability there was secondary disease of the left vocal cord, owing to auto-infection. Probably, however, it would be found sufficient to simply excise the left vocal cord, if this suspicion should turn out to be justified, with curved scissors.

A Case of Frontal-Sinus Suppuration Fourteen Months after External Operation, shown by Dr. STCLAIR THOMSON, and Three Cases demonstrating the Results of External Operation of the Frontal Sinus, shown by Dr. HERBERT TILLEY.

DR. THOMSON'S CASE.—This case was shown to illustrate the completeness and permanence of the cure of nasal suppuration, due to frontal sinusitis, and also to demonstrate that the external scar was trifling and had not increased with time.

The ordinary external operation was performed on April 10, 1900. A photograph was shown of the scar three months later,

and by comparison with the patient's actual condition, it would be seen that this had not increased.

The patient still has suppuration in the antrum, which is drained through a tooth socket. She had, however, been instructed not to syringe this out for forty-eight hours, and as she had not had occasion to wash her nose out since the date of operation on the frontal sinus, it would be allowed that the freedom of the nose from all trace of pus was both genuine and complete. She never requires more than one handkerchief a day, and states that, were it not for æsthetic reasons, two a week would suffice.

DR. HERBERT TILLEY'S CASES.—These cases were shown to demonstrate that if the radical operation was effectually carried out there was no reason why a recurrence of the discharge should take place with lapse of time, as he understood Dr. McBride to have suggested at one of the recent meetings of the Society, and that there was nothing terrible about the operation. These cases had been operated on fourteen months, nine months, and six months ago respectively, and there was still no trace of purulent discharge into the nostrils. Two of the cases also illustrated how slight a deformity is caused by a somewhat radical operation.

Dr. VINRACE confessed to having used the word *terrible* in connection with these operations, as he considered them both formidable and of a serious nature. He laid stress on the importance of freeing the inferior meatus or breathing channel of the nose from all obstruction, and of giving that a fair trial before proceeding to the radical operation. He gathered from the patients that this had not been done in the cases before them. He also considered that it seemed more rational to enlarge, *per nares*, the natural communication between the frontal sinus and the nose, namely, the infundibulum, than to perform an external operation.

Dr. FITZGERALD POWELL asked the exhibitors to give the Society some detailed information as to the methods adopted in the operative treatment of these cases. He would like to know, firstly, what amount of bone was removed, whether the whole of the anterior wall of the sinus or only a portion of it. Also, if the opening from the nose to the sinus was enlarged and kept open by a tube, either solid or hollow, for purposes of drainage; and secondly, as to the method of packing, and general treatment. They seemed to him to be very excellent results, upon which the operators should be congratulated.

Mr. SPENCER asked Dr. Tilley to give some information with regard to the comparative frequency of unilateral and bilateral affection of the frontal sinuses. Dr. Tilley seemed to meet with

unilateral cases chiefly; was it that these cases were more frequent? At one time, very nearly 50 per cent. of cases of frontal-sinus empyema were found to be bilateral, but he had noticed Dr. Tilley showed fewer bilateral than unilateral cases. Was this due to the fact that by doing the radical operation on one side early he prevented the empyema from becoming bilateral?

Dr. MCKENZIE JOHNSTON said that, generally speaking, he thought the antrum of Highmore a much simpler thing to treat than a frontal sinus. In several of these cases, however, the antrum had been opened, and from the fact of the patient's still wearing a tube, he presumed that in these cases, as far as the antrum was concerned, the termination of the case was not yet reached. He would like to know when it was proposed to remove the tubes, and whether the "cure" was considered complete before the antrum was in a satisfactory condition.

Dr. FURNESS POTTER asked Dr. Tilley what symptoms he considered necessitated the operation. Would he do the operation in every case in which he had reason to suppose that pus came from the frontal sinuses?

Dr. PEGLER said it was just worth remarking, with regard to Mr. Vinrace's remarks, that there was much difference of opinion as to which really was the "breathing channel" of the nose.

The PRESIDENT said the main point of interest was what should be the exact radical operation undertaken. The treatment should be as short as possible, and leave as little scar as possible. On these two points the Society would be glad to hear the remarks of Dr. StClair Thomson and Dr. Tilley. He thought it was clearly settled, as had been mentioned by Dr. Tilley, that before operating on the frontal sinus it should, if possible, be washed out from the nasal cavity. It was usually also necessary to first remove the anterior end of the middle turbinated body.

Dr. STCLAIR THOMSON said that with regard to the severity of the operation, the temperature-chart showed this not to be the case. His patient was out of bed on the fourth day after the operation, and on the seventh was up for the whole day, and in about a fortnight left the hospital. So, at any rate, it was not such a "terrible" operation as regards the time the patient had to remain in bed. This woman had the operation done because the discharge was such that she averaged six to eight handkerchiefs a day, and sometimes in the twenty-four hours she might require eighteen. The symptoms were pain over the left eye and neuralgia. She had had discharge for ten months. The disease was evidently brought to a head by an attack of influenza, which made her

frontal-sinus condition much worse. There was plenty of room in her nose to admit of proper breathing when it was not obstructed by pus. When the frontal sinus was opened it was found full of pus, and entirely lined with degenerated polypoid mucous membrane. The anterior end of the middle turbinate was removed sixteen days before the operation, which evidently had given sufficient room for drainage, since for some two months after the operation the patient was able to blow air from the hole in the forehead. Even now, if one put the hand on the forehead, when the patient distended her nose one could feel the scar bulge. Several members had noticed this. With reference to the suggestion of treating the frontal sinuses from within the nose, the matter had been considered by the Society on a previous occasion. In this patient, knowing that unsatisfactory results had been obtained, and that fatal cases had been put on record, he determined to keep the wound open for a long time. He operated on April 10, and did not allow it to close till June 30. This was one of the factors in the treatment of his case. Another was that he cleared out the fronto-nasal duct, but left no drain into the nose. His patient had, as Dr. Johnston mentioned, still empyema of the antrum. He had thought it might simply be a reservoir for the frontal sinus, and so he left it alone, hoping it would spontaneously heal when it ceased to be filled from above. But the antrum was still secreting pus, though in very small amount. At some future time he intended operating on the maxillary sinus.

Dr. TILLEY, in answer to Dr. Vinrace, observed that removal of nasal polypi was a purely temporary measure, and did not relieve the headaches for which the operation had been performed in the cases exhibited. One of his patients had been having his polypi periodically removed for seventeen years at different hospitals. He also pointed out that other questions raised by Dr. Vinrace and Dr. Potter would be found answered in the Proceedings of the Society for February, 1901, p. 78. In reply to Mr. Spencer, Dr. Tilley said that in twenty-three cases of frontal-sinus empyema with which he had had to deal, ten cases had been bilateral.

Two Cases of Thyrotomy for Malignant Disease of the Vocal Cords.
Shown by Dr. HERBERT TILLEY.

In these two cases the operation had been performed five and three and a half years ago respectively. The patients had enjoyed perfect health since, and in the second case the voice was quite good. In the first case the left vocal cord and arytenoid cartilage had been removed, and a few weeks after the operation a large

granulation appeared in the anterior commissure, which was still present in a cicatrised form. Had this not been carefully watched it might have been regarded as a recurrence. Sir Felix Semon had confirmed the opinion of the nature of the case before it was operated on. Full details of both cases may be found in the *British Medical Journal*, October 22, 1898.

Mr. WAGGETT had seen Dr. Tilley do the operation in one case. He remembered that a fortnight after the operation they found some large, suspicious-looking granulations in the anterior commissure. These, however, disappeared without treatment.

Case of Infiltration on the Left Cord in a Man aged Twenty-eight.
Shown by Dr. FURNISS POTTER.

This patient, a railway porter, whose duties entailed a very considerable use of the voice, had recently come under observation complaining of huskiness and a feeling of irritation in the throat, which had troubled him for the last six months.

On examination the uvula appeared to be somewhat elongated, and the left cord was seen to be reddened and infiltrated in its whole length, and it presented an uneven granular appearance. Its mobility was not impaired. The arytenoid region was unduly red, but otherwise the larynx was in the normal condition.

The chest had been carefully examined, but no sign of pulmonary mischief had been detected. There was no cough or expectoration, and no loss of flesh or strength, the patient stating that he felt perfectly well, and able to do his work. There was no history of syphilis, and the family history was free from evidence of tuberculous taint.

The PRESIDENT thought the case might be tubercular, but he understood there was no evidence of tubercle in the lungs. There was no want of movement of the cords.

Dr. FURNISS POTTER thought it was tubercular.

Specimen from a Case of Sarcoma of the Tonsil, with Microscopic Slide. Shown by Dr. MCKENZIE JOHNSTON (Edinburgh).

L—, male, aged twenty-eight years, a farm servant from Shetland, was sent to me at the Royal Infirmary about the beginning of December, 1900, on account of a tumour in his throat. He stated that he had only been aware of its presence for about six weeks, but on inquiry it was found that his friends had noticed for about three months that his speech was thicker than usual. He had no pain or discomfort, and had nothing to complain of except the fact that he felt a lump in his throat, although, latterly,

he noticed that when swallowing liquids they were occasionally regurgitated through the nose.

On inspecting the throat, the left tonsil was seen to be enormously enlarged, extending inwards for some half inch beyond the middle line, and also well down into the pharynx. In colour and appearance it appeared much like a hypertrophied tonsil, only somewhat softer and more vascular. Nothing else abnormal could be seen. Several friends to whom I showed it were inclined to think that the condition was a simple inflammatory swelling. I ordered a course of iodide of potassium, but it was soon evident that in spite of this the growth was rapidly increasing, and that glands underlying it were also enlarging. I then removed the greater part of the projecting mass with the electro-cautery, and Dr. Gulland, who kindly examined it for me, pronounced it to be a rapidly-growing round-celled sarcoma. It was therefore evident that if it was to be removed the operation should be undertaken as soon as possible.

On January 3, 1901, my friend Mr. David Wallace operated, and I am further indebted to him for the following notes of the steps of the operation. The remains of the tonsil and tissue between the pillars of the fauces and the pillars themselves were removed, together with two enlarged glands situated posteriorly and below the angle of the lower jaw. An incision corresponding to the posterior part of Kocker's normal incision was made behind and below the angle of the jaw, the enlarged glands removed, and a ligature placed on the external carotid artery. The jaw was exposed in front of the masseter muscle and divided obliquely, in a line from above downwards and forwards, and the two portions widely separated. This, after opening the mouth, exposed the region of the tonsil very freely, and allowed excision of the diseased tissues to be readily carried out. There was practically no bleeding. The jaw was united by silver suture, a drainage-tube inserted through the opening into the mouth, and the posterior part of the wound completely closed. The patient made an excellent recovery, and at the present date remains perfectly well.

The PRESIDENT said this was a very interesting case, and the Society was much indebted to Dr. McKenzie Johnston for coming so great a distance to show this specimen.

Specimen of a Cheesy Mass found in an Adenoid Growth after Removal. Shown by Dr. MCKENZIE JOHNSTON.

The cyst appeared to be about the size of half an almond, and was filled with a cheesy material.

Dr. STCLAIR THOMSON did not think these cases were very rare. One often saw them in acute adenitis of Luschka's tonsil, but in the chronic cases they were more rarely visible in the mirror. He had had a case sent to him at the Throat Hospital for recurrent attacks of laryngitis, tracheitis, and bronchitis. The patient had adenoid remains, which were removed, and all present were struck by the sickening smell of the caseous matter in the adenoid growths. It was quite possible that from time to time it gave rise to infection, spreading downwards. He did not think Dr. Johnston looked upon this condition as being of rare occurrence, but showed his specimen as being a good example of these cases. They occurred more often than was suspected.

Dr. JOHNSTON agreed with Dr. Thomson's remarks. He did not think the case extremely rare, but he had not met with such a good specimen before, nor one in which the secretion was so deeply situated; the specimen, of course, did not exemplify the condition so well as when it was first removed. Small, somewhat seedlike, masses were often seen, but such a cyst he did not remember to have seen before in this situation.

Sketch of an Aneurism of the Aorta in which Paralysis of the Left Vocal Cord was the only Physical Sign during Life. Shown by Dr. DONELAN.

This patient, an Italian man, aged thirty-nine, was admitted into the Italian Hospital on February 14, complaining of loss of voice, slight dyspnoea, and some numbness and pain in the left arm. He had become slightly hoarse two months before, and had complete aphonia for fifteen days before admission.

There was no history of syphilis. No physical signs could be elicited by the stethoscope. On the 15th, at the request of Cavaliere Naumann, under whose care he was, I made a laryngoscopic examination, and found the usual evidences of paralysis of the left recurrent nerve.

The diagnosis made was paralysis of the left recurrent from intra-thoracic tumour, probably an aneurism.

On the following morning the patient was suddenly seized with symptoms resembling those seen in angina pectoris, became rapidly collapsed, and died within two hours of the seizure.

The post-mortem showed a healthy state of all the organs with the important exception of the aortic arch, where a small oval aneurism was situated on the postero-superior aspect, and immediately outside the origin of the left subclavian. The tumour overlapped and compressed the left recurrent nerve in the manner shown in the accompanying rough sketch.

Case of Separation of the Upper Lateral Cartilage of the Nose in a Male aged Twenty-five. Shown by Dr. FITZGERALD POWELL.

On May 1 of this year this patient consulted me, complaining of considerable nasal obstruction, discharge, and deformity of his nose. He stated that on June 15, 1900, he received a blow on the nose, which was followed by bleeding.

In November, 1900, he had an attack of influenza, which left him with much nasal obstruction, and in December he consulted a specialist, who did not find much the matter in his nose.

In January, 1901, a swelling suddenly appeared on his septum, which was opened, and contained pus; a drainage-tube was put in. From this time his nose began to sink and broaden.

When I saw him last May his nose had sunk in at the junction of the cartilages and the bones. The nasal bones were thickened, and the nose widened. The septum was deflected to the left, was swollen, and had an opening of a sinus, which was discharging. The upper lateral cartilages had become separated from the nasal bones.

At the present date he has much improved, the nose is more natural in shape, not so thick and wide, though the depression remains. The sinus is closed; there is no discharge, but he says he sometimes has attacks of epistaxis.

The PRESIDENT understood that portions of cartilage had come away, the result being that the cartilaginous arch had fallen in.

Dr. FITZGERALD POWELL said he showed this case as he thought it would be of interest as a comparison with a somewhat similar case shown by Dr. Frederick Spicer at the last meeting of the Society. Dr. Spicer thought that the condition in his case arose from the pressure of polypi, but the general opinion of the members was that it was due to abscess of the septum, probably arising from traumatism. In the case now before them the man had received a blow on his nose on June 15, and as late as seven months afterwards an abscess formed in his septum, which was opened and drained, and from that time the falling in of the nose took place from the separation of the cartilages. The sinus was discharging up to a month ago, but was now healed; some necrosed cartilage came away, but no bone was observed. The shape of the nose appeared to be improving.

A Case of Chronic Ulcer of the Septum (? Tuberculous). Shown by Mr. WALTER SPENCER.

This occurred in a girl aged eighteen, who worked with dusty woollen goods. The ulcer was situated on the left side of the

septum, and had been present for a year, during which time there had been some healing at its lower part, but some extension upwards. There is now an ulcer about $\frac{1}{2}$ centimetre diameter covered by granulations, which easily bleed. The cartilage is not exposed. She has a ringing cough, but there is no evidence of lung or laryngeal disease, nor have tubercle bacilli been found with sputa. The treatment applied has been simple, only alkaline douches and ointments.

Dr. MCKENZIE JOHNSTON said from the view which he had obtained there seemed nothing to favour the idea of tuberculosis. He considered it of a simple nature, and recommended the application of chromic acid, and at the same time of some simple ointment to prevent the secretions from becoming too hard. He had no doubt it would heal in a short time.

Mr. PARKER looked upon the case as one due to dry rhinitis. The ulcer was situated just at the spot where excoriation occurred from dust, etc., impinging on the septum. He did not think there was any evidence of tubercle.

The PRESIDENT thought there was an evidence of tuberculosis in this case.

Mr. SPENCER would apply some chromic acid, and recommend to the patient the use of a douche.

An Apparatus for Vibratory Massage. Shown by Dr. A HUDSON.

Dr. Hudson considered that this instrument afforded a useful method of applying vibratory massage by means of an electromotor. It could be so regulated that any kind of massage could be employed, from the faintest stroking to the coarsest hammering. Many thousand vibrations could be obtained a minute, and consequently there was great power of penetration, as the exhibitor had proved by experiments with water enclosed in an indiarubber bag. He had obtained markedly beneficial results in diseases of the eye and ear, and suggested that it was equally suitable for nose and throat troubles, especially for bringing about absorption of inflammatory thickening, and for the stimulation of muscles in cases of paralysis. He had also found it useful for relieving pain and inducing sleep.

Dr. VINRACE asked if any motor power could be used to work the instrument.

Dr. HUDSON replied that a continuous current was necessary.

Three Cases of Bilateral Abductor Paralysis in Tabes Dorsalis.

Shown by SIR FELIX SEMON. (The notes of these cases were very

kindly prepared for the demonstration by Dr. M. Douglas Singer, Senior House Physician to the National Hospital for Paralysis and Epilepsy, Queen's Square, Bloomsbury, of which the three patients were then inmates.)

CASE I.—G. B—, toy-maker, aged fifty-one (under Sir William Gowers). Syphilis twenty-five years ago. No secondary symptoms.

Present illness began three or four years ago with pains and pins-and-needles in legs and feet, and some difficulty in walking. Quite from the beginning he had "choking attacks" at night. Stridor at night first noticed about three years ago, and during last three months has been present also in the daytime if he exerts himself at all. Has also had transient diplopia and a girdle sensation. Hesitant micturition for two years. No incontinence.

Status, April 26, 1901.—Pupils R. > L., Argyll-Robertson type. Partial bilateral ptosis. All deep reflexes absent. Superficial reflexes brisk. Marked ataxia of legs. Well-marked Rombergism. Well-marked analgesia of trunk, ulnar borders of arms and legs.

Larynx, May 3.—Marked double abductor paralysis, almost complete. The left cord is a little better abducted than the right, but even then the maximum width of the glottis in inspiration is only $1\frac{1}{2}$ to 2 mm. Subjective and objective dyspnoea is considerable.

May 4.—Tracheotomy performed by Mr. Ballance.

May 31.—The glottis is a little wider than it was four weeks ago during inspiration.

In remarking on this case, Sir Felix Semon said he wished to draw particular attention to the fact that since the performance of tracheotomy, the inspiratory inward movement of the vocal cords had ceased. This fact was held to be important in connection with the question whether such inspiratory inward movements were due to a purely mechanical cause, viz., to the rarefaction of the air below the stenosis during inspiration—a view held by the older laryngologists, and by the speaker—or whether it represented an active inward movement of the vocal cords due to the fact that during respiration both abductors and adductors were simultaneously innervated, and that the abductors having been paralysed, the innervation of the adductors alone prevailed. This view had been advocated by Rosenbach, Burger, and others. If it were correct, one would naturally expect the inspiratory movement to continue even after the performance of tracheotomy. The disappearance of the movement in the present case was held to point strongly in favour of the mechanical theory.

CASE II.—C. L——, barman, aged thirty-two (under Dr. Bastian). Syphilis fourteen years ago. Temperate in alcohol, non-smoker.

Present illness began three years ago with a heavy feeling in his feet and sudden giving-way at the knees. Soon after he began to have lightning pains. Two years ago he was told that he snored very much at nights, a thing which previously he did not do; this snoring has continued ever since. Sixteen months ago began to have difficulty in walking, which has steadily increased. About five months ago first had choking attacks at night, and on one occasion lost consciousness in one of these attacks. No bladder trouble.

Status, May 13.—Pupils small, R. > L., Argyll-Robertson type. Knee and Achilles jerks absent. Elbow and wrist jerks diminished. Superficial reflexes brisk. Marked ataxia of legs, with extreme Rombergism. Some analgesia of legs.

Larynx, May 31.—The larynx shows abductor paralysis on both sides, with paresis of the internal thyro-arytænoid and the inter-arytænoid muscles. The glottis in front on deep inspiration forms a small ellipse, the vocal processes of the arytænoid cartilages almost touch one another; behind them a comparatively large triangular gap remains.

CASE III.—T. W——, smith's labourer, aged thirty (under Dr. Bastian). Father of patient died of "religious mania." Syphilis fourteen years ago. No secondary symptoms.

Present illness began with gastric and rectal crises two and a half years ago, which have recurred at intervals ever since. Ten months ago began to have also difficulty in walking and lightning pains. About the same time first had choking attacks at night, and soon after noticed a change in his voice. Has had also girdle sensation and precipitate micturition.

Status, March 1.—Pupils L. > R., Argyll-Robertson type. Double ptosis. Knee jerks absent. Slight ataxy and Rombergism. Analgesia of ulnar borders of arms and lower part of the trunk.

Larynx, March 8.—Considerable bilateral and asymmetrical abductor paralysis, with slight paresis of the internal tensors. On phonation the cords come promptly together, and only a very small elliptic gap remains in the middle part of the glottis. On deep quiet inspiration the cords are never separated more than about $2\frac{1}{2}$ mm. in the broadest part of the glottis; their inner borders are slightly excavated, and a small triangular gap remains in the cartilaginous part of the glottis. The speaking voice has a

slightly forced mournful character. Patient states that he has lost several notes in the upper register.

The PRESIDENT remarked on the great interest of these cases, but at such a late hour of the meeting he thought it would be impossible to enter upon a full discussion of the subject. The case in which tracheotomy had been performed was, he thought, of especial interest.

Dr. FITZGERALD POWELL asked Sir Felix Semon when, in his opinion, it was necessary to perform tracheotomy in such cases.

Mr. WAGGETT asked what Sir Felix thought of the plan of early tracheotomy in such cases as these, the ordinary cannula being replaced by a solid plug. This measure would relieve the patient of danger from sudden and fatal dyspnoea, while at the same time avoiding the disadvantages of permanent respiration through a cannula.

Sir FELIX SEMON said that at this late hour it was impossible to fully enter upon the discussion of the points which had been raised by the various speakers. With regard to Dr. Fitzgerald Powell's question, he wished to say that this subject had been discussed quite recently in the Society, when he had stated the principles which now guided his action as to the performance of tracheotomy in cases of bilateral abductor paralysis in tabes. It was a very difficult question indeed, and the decision must be made dependent upon the degree of stenosis, and the question of serious choking fits supervening, whilst a full explanation of the situation ought to be given to the patient, and the decision in doubtful cases be left to him. The occurrence of paralysis of the interarytænoid muscle, which as a rule followed the original abductor paralysis somewhat later than the paralysis of the internal tensors, was a blessing in disguise to the patient, as the greater opening of the glottis resulting from this paralysis greatly diminished the danger of suffocation. As to the permanent wearing of a tube, he thought that the dangers and discomforts it was said to entail were more theoretical than real. He had a patient, a stockbroker, on whom he had performed tracheotomy twenty-one years ago for bilateral abductor paralysis, who was fully able, whilst still wearing his tube, to follow his occupation, and he had never suffered from bronchial or pulmonary affections.

PROCEEDINGS OF THE BRITISH LARYNGOLOGICAL,
RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

General Meeting, March 8, 1901.

Mr. MAYO COLLIER, *President, in the Chair.*

The following paper was read :—

ON THE RELATION BETWEEN DISEASES OF THE EYES,
AND ESPECIALLY CATARACT, AND DISEASES OF THE
NOSE.

BY PROFESSOR C. ZIEM (OF DANTZIG).

Translated by Dr. KOCHMANN, Fellow of the Association.

IN one of Maria Edgeworth's "Popular Tales," which appeared about a hundred years ago, the authoress gave the following graphic description of an Irish peasant's cabin (which was evidently sketched from life): "A poor, mud-walled cabin, facing the door of which there was a green pool of stagnant water, and before the window, of one pane, a dunghill, that, reaching to the thatch of the roof, shut out the light and filled the house with the most noisome smell. The ground sloped towards the house-door, so that in rainy weather, when the pond was full, the kitchen was overflowed; and at all times the floor was so damp and soft that the print of the nails of brogues was left in it wherever the wearer set down his foot. . . . The smoke, too, was so thick that the pig might have been within a foot of you without your seeing him. . . . The former inhabitants of this house," it says further, "had in the course of a few years lost their health. The father of the family had been crippled by the rheumatism, two children died of the fever, and the mother had such an *inflammation in her eyes* that she could not see to work, spin, or do anything."

Possibly this description would no longer apply to any part of the Ireland of to-day; but in Eastern Prussia, in country districts, there existed, according to accounts given by Jacobson and by Hoppe, so late as a few years back, similar conditions; and in Osterode, one of the smaller towns of Eastern Prussia, so recently as three years ago certain marshy meadows situated right in the centre of the town were discovered to be the cause of diseases of the eyes and nose. From the vicinity of Dantzic, ten years ago, a patient came to me who was suffering from serious nasal and aural suppuration, which could be distinctly traced to the presence of a foul pond immediately in front of her dwelling-place. Nay,

even as lately as three years since, I was treating several patients, mostly suffering from severe ophthalmic trouble, who were living in a shed immediately adjoining a pigsty, from which merely a thin wooden partition separated them, but who on being removed were rapidly restored to health.

In all probability Maria Edgeworth, on going fully into the matter, had correctly recognised the connection between those conditions and disease, and also rightly traced the ophthalmic trouble to the "noisome smell" of the "dunghill" and the "green pool overflowing." It is, of course, impossible to determine what was the nature of the ophthalmic affection which prevented spinning and every kind of work, just as little as we can say what was the kind of weakness of vision which befell Augustus Octavianus in the wake of a catarrh which returned every spring, and was caused by the southern winds passing over the Pontine marshes, for upon a closer study of the relations between diseases of the eyes and those of the nose, it has been shown that diseases, not only of the outer eye and its annexes, the conjunctiva, cornea, the lids, lachrymal ducts, external muscles of the eyes, trunk of the optic nerves, cellular tissue and osseous walls of the orbits, but also diseases of the internal parts of the eye, are not infrequently connected with diseases of the nose and its adjacent cavities. These intra-ocular affections are, as I have already repeatedly pointed out, and, I trust, stated with sufficient emphasis, to be explained, not so much by the so-called reflex actions proceeding from the nasal mucous membrane—that is to say, by the nerves, which, according to a saying of Hippocrates, explain everything and nothing—but more properly either (1) by a disturbance of the circulation, a collateral congestion from the nose or its adjacent cavities in the direction of the eye; or (2) by absorption of pus from the area of the nose, which may be (*a*) either local and metastatic; or (*b*) acting more generally by means of a febrile process; or, (3) which is the most likely, by the joint action of congestion and the absorption of pus. I myself have for years paid attention in my publications¹ to both these factors, and I have not been able to agree with all the conclusions of Professor Friedrich of Kiel, nor of Kuhnt of Königsberg, who was the first to recognise and emphasize the importance of absorption of pus in this connection. Perhaps there are altogether not many suppurating nasal diseases unconnected with congestion—that is to say, those in the atrophic stage—which lead to an intra-ocular affection. Thus, we find not infrequently that iritis

¹ *Centralblatt für Augenheilkunde*, 1887, p. 361; *Monatsschrift für Ohrenheilkunde*, 1893, Nos. 8, 9, etc.

will coexist with a severe cold, producing a purulent bilateral nasal catarrh, the result of an acute rhinitis, the ocular trouble not always affecting both eyes, but rather the eye corresponding to the side of the nose in which there was the greater swelling of the mucous membrane, whilst the other eye would remain perfectly free, or but slightly affected. Similarly, we find iritis due to blenorrhoea or syphilis, especially in those whose nasal or maxillary cavities are in a state of suppuration attended with stasis, and in such cases the treatment of the nasal trouble forms a very powerful aid (Ziem, 1893; Kuhnt, 1895). So far back as eighteen years ago I was able to report in a case of chronic glaucoma enlargement of the field of vision by simply withdrawing blood from the nose.¹ In another very important case, that of a lady who had undergone iridectomy for glaucoma, without the process having been thereby arrested, and who on account of the persistent pain "was almost constantly applying cocaine to an extent that was seriously injuring her health," Lennox Browne (in 1886) was able, by removing several obstructing polypi, in the course of from ten to twelve sittings, to cure not only the asthma which was present, but also, and that without any local ophthalmic treatment, the eye-affection itself, and to effect a distinct improvement of the visual faculty, a success which was still manifest a year afterwards.²

We find in cases of this kind that by removing polypi, or by withdrawing blood from the nose, we reduce the congestion of the choroid and the ciliary plexus, and thus glaucoma has, as it were, less basis on which to act. It is true Kuhnt³ took exception to my statements by saying that he had patients under his observation with one or both nostrils completely obstructed sometimes for years by polypi or swelling of the mucous membrane, so that, even with the greatest effort, not a vestige of air could pass through, yet in whom not even the slightest inconvenience, much less a morbid affection of the eyes, occurred. A similar communication was made to me at the beginning of the nineties by Professor B. Fraenkel, of Berlin, in whose Poliklinik many persons suffering from nasal trouble had been examined for concomitant ophthalmic trouble without any result. Great importance need not be attached to such negative observations, because—

1. It has never been maintained that obstructing nasal disease must cause certain ophthalmic diseases; and

¹ *Klin. Monatsblätter für Augenheilkunde*, 1895, March.

² For the exact details of this case, already briefly mentioned by me in 1893, I am indebted to my esteemed friend Dr. B. Kelly, of Glasgow (*British Medical Journal*, May 28, 1887).

³ *Erkrankungen der Stirnhöhle*, etc., 1895, p. 102, etc.

2. There is every probability that there are great individual differences in the erectility and elasticity of the choroid and ciliary plexus.

I have ophthalmoscopically examined the fan in the eyes of birds (an analogue of the ciliary plexus), and have found great differences in the degree of erectility.¹

Hyrtl² has demonstrated marked differences in the degree of erectility in other erectile tissues, especially the sexual organs.

In some cases the venous congestion in the nose will react not on the choroid, etc., but on other neighbouring vascular structures—the brain, middle ear, skin of the face and neck, etc. In these cases the eye symptoms would be completely absent, as I demonstrated in 1891.³ The practically so highly important erectility and elasticity, not only of the ciliary plexus (Fick, Adolf Weber, and others), but of the uveal tract altogether, as well as the individual difference in the degree of this erectility and elasticity, has so far been almost ignored by ophthalmologists.

On the other hand, the congestion alone, without the addition of an infectious agent, does not appear to be able to produce here any more than in other parts a real inflammation or inflammatory engorgement. If in the above-mentioned observations of Kuhnt the explanation just attempted is not accepted as accounting for the absence of any morbid ocular symptoms in co-existing permanent obstruction of the nose, there evidently remains no other possibility but the assumption that in those cases no infectious agent was present, or, if present, existed only to a very slight degree, notwithstanding the fact that, in the great majority of all cases, the swelling of the nasal mucous membrane, as well as the formation of polypi, have an infectious origin. By what process the absence of suppuration of the nose in Kuhnt's cases was ascertained is not stated: that rhinoscopy alone is not sufficient for that purpose has often been pointed out by me, and I once more expressly recall to mind two cases of great importance to the present under discussion, in which the utmost restriction of the field of vision up to the immediate neighbourhood of the fixation-point existed in both patients,⁴ in common with pronounced swelling of the nose, in whom not a trace of pus was discoverable by means of rhinoscopy; whereas, an exploratory douching of the nose subsequently brought away foetid pus in large quantities, and on douching the

¹ Virchow's *Archiv.*, 1891, 126 Band, p. 475.

² "Handbuch der topogr. Anatomie," 6 Aufl., pp. 62 and 73.

³ *Berl., Klin. Wochenschrift*, 1891, p. 820.

⁴ *Monatsschr. f. Ohrenheilk.*, 1889, No. 8, and *Berl. Klin. Wochenschr.*, 1889, No. 38; *J. Fall, Muenchener Med. Wochenschr.*, 1892, No. 16.

nose in the one case, and the nose and maxillary antrum in the other, the field of vision attained almost its normal extent, removing at the same time the violent pains in the eye and extreme venous hyperæmia, and rendering superfluous, in the second case, the operation of iridectomy, already counselled as unavoidable for incipient glaucoma by my late highly-experienced colleague, Schneller.¹

It must, therefore, remain an open question whether, in the observations made by Kuhnt, there may not, after all, have been, by way of cause, some purulent disease of the nasal or accessory cavities. In this connection it is important to remember that an odourless, or nearly odourless, secretion in these cavities will become foetid whenever swelling of the mucous membrane blocks the discharge; and this symptom will have an important bearing in such cases associated with ocular symptoms.

Anyhow, it appears to me that intra-ocular diseases are only seldom to be traced to absorption of pus alone, without nasal obstruction, and that even then the influence of the customary severe blowing of the nose for the purpose of removing the discharge has to be regarded as important in favouring the occurrence of a venous hyperæmia of the uveal tract and thus of narrowing of the visual field,² and possibly even producing occasionally rupture of the suspensory ligament of the crystalline lens and its dislocation.

At any rate, I have seen many a patient affected with narrowing of the visual field and visual disorders manifest iritis or glaucoma, with coexisting nasal trouble, who did not exhibit in the least any of the conditions observed by Kuhnt in his cases, notably "enfeebled general condition, anæmia of a high, and even of the highest degree, with muscular weakness," in whom a neurasthenia,³ as put forward by Moritz Schmidt and Kuhnt, to explain the so-called "functional" disturbances of the eye, could therefore well be

¹ I have abstained from reproducing the fields of vision shown in the papers quoted, for those experts who, in cases, in which one-eyed patients, with their seeking and fixed look (so characteristic of restriction of the field of vision), were able, after a short period of treatment, to find their way about easily and fearlessly in the streets and in my consulting-room, had thought proper to attribute the extension which had been brought about in the field of vision to "imagination" on the part of the patient or myself, are, as a matter of course, incapable of being convinced, and probably would not be even after confirmation of my statements by Kuhnt's observations.

² Cf. Ziem, "*Annales des Maladies de l'Oreille*," 1892, p. 498.

³ In my very first works on this subject (*Berl. Klin. Wochenschr.*, 1888, No. 37) I explained fully, and yet perhaps not fully enough for some people, that neurasthenia had not existed in the case in which my late colleague, Schneller, had practised iridectomy on one eye for glaucoma without effecting a cure, which eye, together with the second eye of the patient, which likewise showed beginning glaucoma, was cured by me by the removal of severe suppuration of both maxillary antrums.

excluded, and I do not in the least consider it proved that the "intoxication" referred to by Kuhnt—or, to call it by a better name, the fever-producing absorption of pus—acts directly on the brain and nerve substance without the intervention of stasis in the choriocapillaries, and, further on, in the pigment epithelia embedding rods and cones of the retina. Altogether I believe that the so-called "functional" disturbances of the eye consequent upon disease of the nose and its accessory cavities, consisting in, according to Kuhnt's definition,¹ "restriction of the field of vision, diminution of the central sight, weakness of accommodation," etc., without ophthalmoscopic or orbital objective signs, differ from real intra-ocular inflammations only in *degree*, and, in the event of materially increased engorgement of the erectile choroid, there will, as I have already said years ago,² be sure to occur a disturbance of the circulation in the optic nerve and the retina itself, by means of Haller's corona vascularis, *i.e.*, the anastomosis of the hindmost vessels of the choroid with the vessels of the optic nerve. I can, for the present at least, explain neither anatomically nor physiologically the reason why, on the basis of a chronic, purulent, obstructive nasal disease and a consecutive intra-ocular stasis in the one case, iritis should develop connected with a *narrowing* of the pupil, whilst in another case acute glaucoma should occur connected with marked *dilatation* of the pupil; in some cases of the latter kind there has preceded, it is true, some psychical or mental excitement (such as a fit of passion, excitement over cards, etc.) connected with dilatation of the pupil, and, as it were, prepared the condition, but by no means in all.

I will not now enter upon the important and, as it would seem to me, decisive, significance of diseases of the nose with regard to the occurrence of sympathetic ophthalmia,³ but will discuss somewhat more fully a subject hitherto but slightly touched upon, namely, the importance of nasal diseases with regard to cataract, for which purpose I should like, first of all, to give an account of a few cases.

CASE I. (previously published in the *Berl. Klin. Woch.*, 1889, No. 38).—Mrs. H——, a widow, aged seventy-four, came to see me on February 11, 1889, having, she stated, suffered two months before from inflammation of the throat accompanied by fever, on which occasion she had been given medicine by a parish doctor; after taking the medicine her power of vision had deteriorated

¹ Kuhnt, l. 1, p. 115.

² *Monatsschr. f. Ohrenheilkunde*, 1893, Nos. 8, 9.

³ Ziem, *Internat. Klin. Rundschau*, 1888, Nos. 10, 11; *Wiener Klin. Woch.*, 1894, No. 32; 1895, No. 5; and *Glasgow Med. Journal*, 1895, January, B. Kelly's translation.

to such an extent as to prevent her from continuing to do needlework, by which she had been earning her living, and to make it difficult for her to find her way about in the streets, as she invariably only saw a very small portion of the people who were coming towards her. Her hearing, too, she stated, had been affected for a time after taking the medicine.

On examining her eyes I found the following condition :

Right : Fingers on 4, 5 metres, with +3, 5, spheric—Snellen, 5 figures.

Left : Fingers on 2, 5 metres, with +2, 5 spheric—Snellen, 7 figures.

Both fields of vision restricted to the nearest vicinity of the fixation point. Commencing cataract in both eyes. Pupils somewhat narrow. The arteries of the papilla somewhat thin ; no pronounced venous hyperemia. Nose frequently obstructed for years past, as also at the present moment, consequently breathing through mouth. On syringing nose with a solution of common salt, a somewhat large quantity of purulent mucus was removed, after which the patient immediately felt relieved in the head. After continued syringing of the nose and of both maxillary cavities, of the left from February 16, and of the right from February 21, the power of vision was as follows :

Right eye :

February 26. Vision 5 18, with +3.5—Snellen, 3 figures.

March 14. „ „ +2.5 States she can see as well as before, can again thread a needle ; wherefore treatment interrupted.

July 2. „ 5 24, +2.5

February 26. „ 5/60, +3.5

Left eye :

March 9. „ 5/36

July 2. „ 5 24, +2.75

Condition in general on July 2 : Both fields of vision considerably larger. Veins of papilla on right side slightly thicker than on the left ; cataractous striæ and cones on right side somewhat thicker than on left, and reaching also somewhat further into the pupillary region. Left nasal half always freer than right ; slight nasal secretion on syringing. For several years later the faculty of vision is said to have been good ; absence of later news.

In the observations now following the whole of the visual tests were made in the dark-room, and with the same artificial light.

CASE II.—On December 3, 1897, Mr. R—, aged sixty-one, an itinerant news-vendor and member of a sick-club, came to me for treatment on account of diminution of sight in the left eye, which had increased since an attack of influenza from which the patient had lately suffered, after having practically lost the sight of the other eye for several years past.

Right : Movements of hand eccentric ; left with—8.0 spheric 5/60. Ophthalmoscopic examination—on right remarkably pronounced tremulousness of iris and extensive detachment of the retina ; on the left advanced cataract, not mature yet in the anterior corticalis, which, at most, allowed a very slight red reflex to pass through, without admitting of any details whatsoever of the fundus of the eye being detected. The iris moving freely. On both eyes catarrh of the conjunctiva with purulent secretion, especially on the left eye, the lids of which are sticky in the morning, which also shows epiphora. Somewhat copious suppuration in both nostrils.

The removal of the cataract, which was, moreover, not quite mature,

could not, of course, be proceeded with with any chance of success, in view of the fact of the patient possessing only one eye, of the suppuration of the conjunctiva and of the nose, and of the epiphora, for which reasons I began treating the catarrh of the conjunctiva and of the nose by daily syringing the sac of the conjunctiva and the nose with a physiological solution of common salt and the application of Drouot's plasters in the *regio retrobulbaris* immediately behind the auricle.

Contrary to all expectations, considerable improvement set in within a short time, even in this advanced case, so much so that the acuteness of vision had risen after the lapse of six days, on December 9, with -8.0 to $5/24$ on December 15, even to $5/18$. Of the fundus, however, as was only natural, as little as ever could be seen by means of the ophthalmoscope. As the patient was able by means of -5.0 spheric glasses to read the headings of his newspapers and the numbers of the houses, and consequently to follow his calling, and as his gait in the street was remarkably steady, the treatment was interrupted for a while. A further examination on July 3, 1899, showed with -8.0 acuteness of vision $5/60$. Same treatment by syringing and Drouot plasters; on July 27, again $5/24$. Having given up attending the sick-club, I have since lost sight of this patient.

CASE III.—Mr. S—, plumber, aged seventy, but still very hale, a member of the sick-club. Came to me for treatment on April 17, 1898, owing to diminution of sight, having with $+1.5$ spheric on right eye $5/24$ and on left $< 5/60$. Cataract on both eyes; on left side considerably more advanced; pronounced purulent chronic nasal catarrh. After syringing and application of Drouot plasters, the acuteness of vision, on June 15, on the occasion of the sixth consultation, in the right eye without glasses was $5/9$, that of the left, however, showing no improvement.

CASE IV.—Mrs. D—, aged sixty-five, cook, married, member of sick-club, came October 26, 1898. Emmetropia on both eyes, $5/60$. Cataract in both eyes, with a good deal of clear substance still left, but showing cataractous striæ already very cloudy, partly broad, also in the front part of the lens. Epiphora on the right, chronic purulent nasal catarrh on both sides. Syringing of the sac of the conjunctiva of the right eye and of the nose, with application of Drouot plasters. Occupation not interrupted. November 3, fourth consultation: right eye $5/18$; left eye $5/36$. On December 9, tenth consultation; epiphora almost entirely disappeared.

CASE V.—Formerly a teacher, aged eighty-two. Bilateral opacity of the lens in very early stage, with narrow cataractous striæ. Speech somewhat thick; nose, in patient's opinion, absolutely healthy; he refused to have it syringed. Drouot plasters alone applied. First consultation, December 21, 1898, with $+2.0$, right eye $5/18$, left $5/36$; fourth consultation, January 18, 1899, with $+2.0$, right eye $< 5/9$, left eye $< 5/18$.

Consequently the central acuteness of vision showed increase:

In Case I. right eye from $< 5/60$ to $5/18$; left eye from $< 5/60$ to $5/24$.

In Case II. „ no rise; „ $5/60$ to $5/18$.

In Case III. „ $5/24$ to $5/9$; „ no rise.

In Case IV. „ $5/60$ to $5/18$; „ $5/60$ to $5/36$.

In Case V. „ $5/18$ to $< 5/9$; „ $5/36$ to $5/18$.

In Case I. syringing was confined to the nose and maxillary cavities, in Cases II., III. and IV., syringing of the nose and application of Drouot plasters, and in Case V. Drouot plasters alone.

It is evident from the very outset that the partially very material improvement in the acuteness of vision which, in the above cases, could be established with certainty—in Cases II. to V., moreover, under special precautions in the darkened room, and with the same artificial light—could not be explained by a clearing up of opaque lenticular substance, similar to the spontaneous resolution of coagulated lens substance subsequent to the introduction in the body of animals of substances abstracting water, by Mitchell, Kunde, and others,¹ or subsequent to the application of ice to the eyes of animals by J. v. Michel,² for in these cases nothing whatever could, of course, be seen of any such resolution. The improvement in the acuteness of vision must, rather, according to the reasons given above, be attributed to (a) removal of a disturbance in the circulation within the vascular region of the elastic and erectile choroid, and the pigment epithelia of the retina nourished by the chorio-capillaris; (b) to the removal of a disturbance of the functions of the rods and cones of the retina, which had come about either by the congestion in itself, or by absorption of a purulent secretion from the nose—to the removal, therefore, of these disturbances of circulation and nutrition by means of (a) either syringing of the nose and maxillary antrum with a physiological solution of common salt (Case I.), or (b) by counter-irritations by means of Drouot plasters (Case V.), or (c) by a combined treatment (Cases II., III., IV.).

With regard, firstly, to the syringing with a solution of common salt, only prejudiced and inexperienced persons could assert that it simply represents a cleansing agent, and such authors would perhaps be persuaded of their error, in the quickest and easiest manner, if, when suffering from pressure in the head or a running cold, they were once to syringe out their noses with such a solution, especially when the nose itself feels a little hot and dry on the outside; they would then notice, five or ten minutes later, that even without removing any secretions, the feeling of tightness has gone from their heads; that they are able to think more rapidly, this being due solely to the influence on the lymphatic or venous circulation within the nose and the adjacent regions, in this instance, in the brain and meninges of the brain, whereas this feeling of freedom in the head would not be felt after employing a solution of

¹ J. Zehender, *Augenheilk.*, 1874, i. p. 295.

² *Centrabl. f. Augenheilk.*, 1882, p. 61.

soda ; in a similar manner, therefore, by acting on the circulation within the eye-ball itself, we must explain the improvement in the power of vision, as set forth in the foregoing observations.

A similar effect to that produced by syringing can be obtained by means of counter-irritation in the post-auricular region, naturally not in any part of the regio mastoidea, but rather *immediately* behind the lobulus auriculæ.¹ Owing to the deep veins of the pharynx, and, further on, of the naso-pharynx, anastomosing with the region of the lobulus auriculæ, counter-irritants cause a diminution of the swelling of the mucous membrane of the nose and maxillary cavity, and also of the intra-ocular vessels, and that not only in the case of simple congestions, but even in real purulent inflammations of the outer and inner regions of the eye.

A combination of these two procedures, as in cases Nos. 2, 3, and 4, appears to effect the best results. It is regrettable that such a combination could not have been put into effect in case No. 5, whereby the result on the left eye might possibly have been still better, and that in case No. 3, where no result was visible in the left eye, the treatment of the nose had not been combined with an exploratory opening of the maxillary cavity, but it was impossible to prevail upon the patient to stop away for some time from pursuing his calling.

The foregoing observations are of importance in a twofold respect: (1) With regard to the treatment of cataract in its early stages, and (2) to the theory of the etiology of cataract in general.

(1) With regard to the first, there has been at our disposal up to the present, in addition to the stereotyped but often very unnecessary prescription of protective glasses, (*a*) the use, often the very inappropriate use, of a mydriatic (atropia, Duboisin, homatropine, cocaine, etc.) in a weak solution, which, naturally, is not without grave consequences in the long-run, and which, absorbed day by day, even in minimum quantities, often produces general toxic symptoms, as in Lennox Browne's case, already referred to, but also locally produces unfavourable effects on the blood capacity of the uveal tract, and more especially of the ciliary body, notably in the event of stasis being already in existence in the wake of diseases of the nose; (*b*) maturation—discission, and the massage of the lens, according to Foerster, etc.

I am not aware of there having been recorded, where a mydriatic had been ordered for cases of this description, any such lasting improvement in the acuity of vision as shown in the foregoing observations; especially in case No. 2, that of a one-eyed

¹ Ziem, *Monatsschr. f. Ohrenheilk.*, 1892, p. 162.

working man, living in poor circumstances and suffering from suppuration of this one eye, it was surely of importance to put off for at least two years the operation, which, in any case, did not hold out any very great chances of success, whilst restoring to the patient the faculty of again earning his own living. My procedure, moreover, forms a direct contrast to maturation discission as well as to Foerster's procedure; to both of these it is evidently preferable, if successful, in many cases, especially in the earlier stages of the disease, as, for instance, in case No. 1, inasmuch as, notwithstanding the finest operation statistics, one naturally cannot know from the outset what result may follow the operation, and whether it would not be better to maintain the *status quo*.

(2) It may, however, be assumed that by correct treatment of disease of the nose, not so much by dry (bloodless) galvanocauterisation, especially of the middle turbinal, but by the withdrawal of blood from the nose, by the removal, attended by loss of blood, of obstructing swellings or polypi, syringing of the nose, counter-irritations in the post-auricular space, and last, but not least, by the removal of febrile processes, the further development of cataract will straightway be prevented. Thus, in explanation of the above Case I., I made, in 1889, the following remarks: With regard to the highly attractive theory of J. Jacobson,¹ to the effect that the doctrine of cataract, of the diseases of the vitreous body, and of many diseases of the fundus oculi, forces one to assume a long-standing latency of circulatory and nutritive disturbances in the ciliary body, I think the case in question may be of interest.

It is certain that in this case, previous to the amblyopia produced by intoxication, whether by quinine, salicylic acid, antipyrine, or by any other cause, there had been present venous hyperæmia of the ciliary plexus, which had, it is true, given rise to the formation of cataract, but, after all, had only led to a more pronounced deterioration of the peripheral, as well as of the central visual power² by the supervention of increased congestion produced by the intoxication.

Thus, also, in the case of another patient under my observation, a pensioned civil servant, aged seventy, suffering from offensive suppuration of the nose, syphilitic perforation of the septum, old-standing iritis combined with several synechiæ, and commencing cataract of the same eye, there had been no progress of the opacity for several years, the patient using daily nasal douches and taking daily walks. Apart, however, from this last complicated case,

¹ Jacobson, *Krankheiten des Sehorgans und Allgemeinleiden*, 1885, p. 122.

² *Berl. Klin. Wochenschr.*, 1889, No. 38.

a confirmation of my observations by numerous further cases would fully warrant the assumption that the development of a cataract can be brought about by obstructed purulent diseases of the nose, as by other factors, such as injuries, manifest inflammations, diabetes, etc. It would then have to be further established whether the obstruction in the nose by itself would be able to accomplish the clouding of the lens, or whether it would require the presence of a *purulent* disease of the nose or of the adjacent cavities. The formation of cataract in such cases would have to be looked upon as being due to infection, not infrequently connected with suppurations of this description, and sometimes running a very slow course—a process in which the tissues and cells of the eye—"the light of the body"—react more rapidly and with greater intensity than other tissues and cells, or whether in some cases it is necessary that there should exist in addition some *acute febrile* trouble *invariably* connected with diseases of the nose—notably influenza—as was the case in my two first observations, and in another case mentioned by Kuhnt, to which reference will presently be made.

I no longer stand alone in assuming that the formation of cataract may, in a series of cases, be connected with diseases of the nose. Apart from a notice appearing in Hyrtl's "Topographical Anatomy," vol. vii., p. 262, which may possibly apply here, and according to which Ruete had traced cataract, amongst other diseases, to scrofula, two modern authors, namely, Kuhnt and Jonas, quite recently made communications which bear on this subject. According to the latter, of whose monograph I have, however, only a short reference at my disposal,¹ changes of some kind or other in the sphere of the middle turbinal are said to have given rise, "by a sort of reflex process," to the development of cataract in sixteen persons. More important, however, are Kuhnt's observations. After making some reference to my treatise of 1893, he repeats the explanation of cataract (given already by Jacobson and adopted by myself) as the expression of an engorgement in the region of the ciliary plexus and of a disturbance of the nutrition of the lens, and continues by saying that, in the case of suppuration of the frontal sinus, he had never met with any indication of opacity of the lens; whereas, in the case of empyæma of the maxillary cavity, such an interdependence had repeatedly been "highly probable"—that is to say, younger individuals in the thirties, forties, and fifties, who developed, without any hereditary taints or any other ascertainable bodily disease, cataract, but no changes in the fundus, in the vascular system of the body or

¹ *Wochenschr. für Therapie des Auges*, 1900, No. 21.

eye, the cataract in them invariably appeared in the form of a radially-shaped opacity of the posterior corticalis, leaving the rest of the lens free and the posterior pole unchanged. He then goes on to describe in detail the case of the wife of a schoolmaster, aged forty-five, who from her youth had suffered a great deal from colds in the head, especially on the right side, and also, a few years previous to the examination, from recurrent influenza, from which period her sight had deteriorated. Radially shaped small opacities occurred in the posterior corticalis, more marked on the right than on the left; in the anterior corticalis there were small punctiform opacities, and in the anterior part of the vitreous body several small opacities, whilst the fundus was found to be normal. The patient on being treated for a rather copious empyæma of the right maxillary cavity, which was opened from the alveolar process, declared that she saw better on the eye of the same side, although it was not possible to determine the degree of improvement.¹

With regard to the foregoing somewhat minute description, which I purposely reproduce word for word, I must say that, just as in Kuhnt's case, according to his own description, the anterior corticalis also had shown signs of opacity; so in my case No. II. and in case No. III. (left eye), as well as in case No. IV., the opacity had not been confined absolutely to the posterior corticalis, and cannot, therefore, be regarded as characteristic, and from this or that form of cataract we cannot conclude that the nose or maxillary antrum was involved or not. Of more interest, however, if confirmed by further observations, would be the freedom of the frontal sinus as found by Kuhnt, inasmuch as from the outset one might expect a more pronounced intra-ocular engorgement with a diseased condition of the maxillary cavity than with an affection of the frontal sinus. Finally, let me state that I know of no means to measure reliably the condition of the "vascular system of the eye," and especially also the blood capacity of the ciliary plexus, and even of the choroid, in the living subject, with the exception of the therapeutical experiment I have mentioned.

To further illustrate the possible significance of febrile diseases in the etiology of cataract, eight years ago I pointed out the frequency of opacities of the crystalline lens in countries where febrile infectious diseases are of an endemic character, as notably in the region of the Ganges—on the Lower Ganges, "rushing through a hundred channels to the sea," in the most magnificent delta of the world, which, according to H. Kiepert, is mentioned in the oldest Indian writings as marshy wood-

¹ Kuhnt, *loc. cit.*, p. 118.

land, the islands of which, the so-called "Sunderbunds," are covered with marshy jungles and impenetrable thickets of reeds and bamboo, and from the marshes of which, "overgrown by noxious vegetation," there arise mephitic exhalations; in the western part of East India, where, after the monsoons have passed, fevers rage over large tracts of land, dangerous to all travellers, so much so that, in accordance with a former army order, even the Sepoys are not allowed to go home on furlough previous to January—that is to say, three months after the rains. There is the practical school for ophthalmic surgeons. There are, it is said, in some hospitals as many as 600 operations being performed every year for cataract alone. Galicia likewise seems to be rich in cases of cataract, as it is in malaria and other infectious diseases. Beheim-Schwarzbach, it is true, wanted to make the almost exclusive and presumably debilitating rice diet, as practised by the Hindoos, responsible for the frequency of cataract in India, a view *a priori* very improbable even to vegetarians; whilst J. Locke, on the other hand, traces many diseases, especially in England, to a too abundant meat diet ("On Education," § 14); and whilst, moreover, according to the experiences of the veterinary ophthalmologists, the so-called sclerosis of the lens fibres in herbivorous animals only seldom develops to the extent of causing visual disturbances, whereas in carnivorous animals in the course of time there occur regularly veritable opacities in the transparency of the lens, preventing a view of the fundus of the eye.¹

In an interesting article on cataract in glass-blowers, J. Hirschberg, Berlin, appears, on the other hand, inclined, just as M. Beer in 1817, to attach great importance to the permanent effect exercised on the head and eyes by intense heat, adding in support of his view that the cataract patients whom he had seen in the hospitals of Calcutta, Jeypore and Bombay were a great deal younger than those he had come across in his own practice, so much so that under the "burning sun of India the senile cataract ripens twenty years sooner than with us." Also in our country population cataract shows itself much earlier than in townspeople.²

Without finding fault with Hirschberg's assumption that, as far as glass-blower's cataract is concerned, the crystalline lens, if exposed frequently and for long periods to a strong radiation of heat, undergoes inner changes owing to the absorption of the heat, which changes finally lead to a clouding of its transparency, I must say, on the other hand, that the conditions with regard to the

¹ Moeller, *Augenheilk. f. Thierärzte*, 1892, p. 155.

² Berl., *Klin. Wochenschrift*, 1898, p. 114.

cataract in hot countries, notably in India, are, after all, somewhat different. In the first place, Hirschberg, strangely enough, mentions as a means of protection against the effects of the heat on the lens the cornea alone, including the layer of fluid covering it and the aqueous humour, and does not, however, mention three other factors of great importance—namely, the very much higher percentage of pigment in the iris of the dark-eyed Hindoos; the narrower pupils of inhabitants of hot countries, as specially mentioned by Lewkowitsch¹ after a long stay in South Africa; the somewhat different shape of the eyelids in hot climates, which is better adapted than our own for keeping away many noxious influences and the rays of heat (the narrow eyes of the Mongolian race, the almond-shaped eyes of the Egyptians, etc.). The early maturation of cataract in India is therefore due in a minor degree to the burning sun than to the frequency with which febrile diseases connected with diseases of the nose occur in that country, a circumstance to which, unfortunately, Hirschberg does not appear to have paid attention. It might be of importance also in this connection, inasmuch as cataract in India affects chiefly the natives, to note the fact that in Calcutta, for instance, the natives live in the “black town,” in narrow, dirty streets, whereas Europeans live in the “white town,” which has all the appearance of a European town of importance. In Egypt also, where, on the occasion of my observations in 1880-1882, there did not appear to exist any remarkable frequency of cataract, the very frequent and mostly less severe febrile diseases prevailing in that country may have been of some influence; whereas in Malta, where, according to John Locke, the heat is greater than in any other part of Europe, greater than in Rome, and nearly stifling on account of the almost complete absence of any cooling breezes, where, moreover, the heat causes the common people to become as brown as gipsies, whilst “the peasants, defying the sun, work on in the hottest part of the day without intermission or sheltering themselves from his scorching rays,” and where the children “are going stark naked, without shirt, drawers, or head-covering, from the cradle till they are ten years old,” there has not been noticed any remarkable frequency of cases of cataract caused by the heat alone, so that in future one will have to distinguish in this respect between hot countries and hot marshy countries.

Hirschberg, furthermore, in this connection mentions the earlier appearance of opacities of the lens in our agricultural labourers as compared with town inhabitants, trying to attribute

¹ *Centralbl. f. Augenheilk.*, 1897, p. 256.

that fact likewise to a direct influence of heat in the open fields in the case of agricultural labourers. One should also bear in mind the other miserable condition of the abodes of the poor country population exercising a general deleterious influence, and especially adapted to favour diseases of the nose, as is the case more especially in the marshy districts of Schleswig-Holstein, Oldenburg, etc., where ague and cataract are fairly prevalent. The same applies perhaps also to inhabitants of mountain passes and valleys in the Tyrol, who suffer frequently from cataract; excessive heat of the sun can surely not be alleged to be the cause—it must be rather the insanitary condition of their dwelling-places, rendered more or less damp by the moisture trickling down the mountains. The same applies possibly also to some particular occupations, which have already been looked upon by older authors, quoted by Hirschberg as favouring cataract, especially to smiths, cooks, and laundresses, in which cases not only the radiating heat and the hot steam affecting the eyes will have to be borne in mind, but also, assuredly, the highly-heated condition of the body, the *sudations fréquentes* of Panas, with subsequent chills, bringing in their wake as a direct result so frequently attacks of coryza, a condition of which a very striking example is afforded by my case No. 4—relating to a cook, who, after a temporary removal of a purulent nasal catarrh, was again perfectly able to follow her calling, whereas, in accordance with the theory in question, she ought to have given it up. In a like manner, with regard to the excessive use of beer, wine, etc., but especially of acidulous hocks, on the importance of which, in connection with the etiology of cataract, Albert Morren laid particular stress, it must not only be remembered that alcohol and its decomposition products exercise a deleterious influence on the lens-substance itself, corresponding to the occurrence also in the lens of different substances introduced into the digestive tract, according to experiments made with animals and human beings by Bence Jones, Bowman, and Critchett; but we must attach importance at the same time to the catarrhs of the upper air-passages, together with their reaction on the eye, which are invariably present in the case of habitual drinkers. Finally, if an influence of the sun on the maturation of cataract in the sense stated by Hirschberg really existed, we should notice similar conditions also in the fauna of the tropics, and opacity of the crystalline lens of the animals should be more frequent there than they are with us, where the eagle, owing to the fan protecting his retina, is able to soar right towards the sun, and where in birds, those inhabitants of the open air, “the

ocean of free air," opacities of the lens are on transillumination so rarely found.¹ Numerous examinations of the kind have up to the present brought to my notice only one case, that of a fowl, in which there was present an inflammatory adhesion of the fan of the eye. In animals kept in zoological gardens in a state of close confinement, frequently kept in dirty and evil-smelling cages, and very much restricted in their locomotion, or in very much overworked draught-horses, showing at the same time symptoms of enlargement of the vena facialis anticus, and, according to Hyrtl, other symptoms of venous engorgement, more or less pronounced opacities of the crystalline lens do undoubtedly occur, but are to be principally traced to the altered, unnatural conditions of life, and not necessarily to be considered as natural attributes of old age.

From all that has been stated in the foregoing, the theory with regard to senile cataract is yet full of much that is obscure and ambiguous; and the idea that the occurrence of opacity in the lens in many persons of old age is a matter of course, a kind of unavoidable fate, an undesirable fruit peculiar to the tree of old age, maturing earlier in one country and later in another, possesses something that is most unsatisfactory, so much so, indeed, that further inquiry into the connection established and, it is to be hoped, proved up to a certain degree in these pages, existing between the conditions referred to, would recommend itself.

No person suffering from cataract should be operated upon so long as there exists any marked nasal suppuration, because, as I myself have had occasion to experience in the case of one of my patients in 1889, by the propagation of the purulent catarrh through the naso-lachrymal duct the eye may undergo suppuration. This has, in fact, been observed in several cases recently discussed by Hirschberg, operated upon by others, in which suppuration of the nose had been overlooked.² In the general explanation of the relation between diseases of the eye and the nose, I, on my own part, can see to-day yet more distinctly than twelve years ago³ the greatest progress of which practical ophthalmology is still capable. By the neglect of diseases of the nose many persons suffering from ophthalmia are at this very moment being wrongly treated; and many patients operated upon by the very foremost authorities, whom I have subsequently seen, were from this cause (unless, as in the case mentioned by Lennox Browne, help was fortunately and

¹ Ziem, *Wiener Klin. Wochenschr.*, 1893, Nos. 5, 6.

² *Berl. Klin. Wochenschr.*, 1900, No. 24.

³ *Ibid.*, 1889, No. 38.

successfully afforded whilst there was yet time) obliged to join in the plaint of Samson Agonistes :

“ O loss of sight ! O worse than chains,
Dungeon or beggary or decrepit age !
Light, the prime work of God, to me is extinct,
And all her various objects of delight
Annull'd. . . .
Irrecoverably dark, total eclipse,
Without all hope of day !”

But, far above personal welfare and the care for the individual, the preceding statements should be of importance to large communities and countries, if cataract indeed be due in a large measure to primary diseases of the nose and to hygienically deleterious influences acting on the nose. The burning sun of India cannot, of course, be tempered by human power, but human power can, by the regulation of water-courses, by the draining of marshes, such as was proceeded with on a large scale in Ireland in the last century, render fever districts sanitary; by the more perfect sanitation of towns, the construction of waterworks, the establishment of sanitary dwellings even for the poorest classes, and undertakings of this description, diseases might be greatly restricted. In Hong Kong, formerly known for its insanitary condition, the mortality is now 25 per cent. of that formerly existing. To quote Macaulay : “ The difference in salubrity between the London of the seventeenth century and the London of the nineteenth century is very far greater than the difference between London in an ordinary year and London in a year of cholera.” In the same way, in all probability, the frequency of cataract in India and elsewhere might be restricted, as is the case in the London of to-day as compared with the London of Steele and Addison, and of the oculists William Read and Grant.

Mr. PERCY DUNN said that he had listened with much interest and pleasure to the suggestive paper which had just been read. He believed that it showed very forcibly the necessity for ophthalmic surgeons knowing more concerning nasal disorders than was usually the case in this country. The custom here was to keep the specialties of the nose and eye separate and distinct, with the result that for the most part ophthalmic surgeons had little knowledge of those nasal diseases which could give rise to ocular trouble. The paper discussed many phases of this possible connection, and perhaps, if he might say so, there appeared to be in some instances in this regard a tendency to exaggeration. This, however, was a point which could only be actually determined by a

perusal of the paper after publication. It seemed to him that the main condition underlying the association of nasal and ocular disorders was one of vascular disturbance. If it were conceded that the tendency of certain diseases of the nose was to disturb the blood-circulation of the eye, then it would not be difficult to understand how eye trouble arose as the result of nasal disorders. In this way, for example, nasal trouble might become an indirect cause of glaucoma; furthermore, it did not seem to be at all improbable that by the same means the normal nutrition of the lens could be interfered with, ultimately resulting in the development of cataract. Again, in reflecting further upon this subject, it seemed reasonable to conclude that the effects upon an eye of the vascular disturbance would vary in different cases. Thus, in one case it might be instrumental in causing iritis, in another glaucoma, in another cataract, the nature of the disease being largely determined by the special tendency present in the eye to undergo morbid change. He trusted that Professor Ziem's paper would be published in full, inasmuch as it could not fail to be read with interest and profit by ophthalmic surgeons.

Mr. LENNOX BROWNE desired to formally second the President's vote of thanks to Dr. Ziem for his interesting and suggestive communication. Without for a moment disputing Mr. Dunn's remarks, that in these cases circulation was undoubtedly at fault, he would go a step further, and, in the light of Mr. Dunn's information as to the rapidity with which diffusible drugs were found in the fluid of the lens, suggest it was quite reasonable to advance that pathogenic germs might be conveyed through the same channel. This would, at least, account for some of the cases of early cataract in which there was no degeneration of the vessels, as was the fact in the cataract known as senile. Other cases in which pain was the prominent symptom, such as glaucoma, were undoubtedly to be explained by pressure on the nasal branch of the ophthalmic nerve. Beyond these there was another class, including conjunctivitis and even some cases of astigmatism, which were relieved by cure of nasal or naso-pharyngeal obstruction. The speaker alluded also to the importance of the observations of Hajek and others regarding enlargement of the bulla of the ethmoid leading to obliteration of the infundibulum. Sluder had pointed out that in such a case the consequent rarefaction of the air in the frontal and other accessory sinuses predisposed to changes such as are observed in the middle ear, the result of stricture, or collapse of the Eustachian tube.

The PRESIDENT said that he felt sure the Association would freely

acknowledge its indebtedness to Professor Ziem for his excellent and instructive paper. The Council that day had shown their appreciation of Professor Ziem by electing him a corresponding Fellow of the Association. Professor Ziem went a long way and wished to prove a great deal. Personally he (the President) could not go so far as to accept all the conclusions of Professor Ziem. Before establishing the causal relation between any particular pathological condition in the eye and some causal condition in the nose, it would be as well to establish first of all an interdependence physiologically and anatomically between these parts. This there was not the least difficulty in doing anatomically. The lachrymal sac was continuous with and directly extended into the nasal cavity by way of the lachrymal duct, and obstruction to the nasal duct had a direct pathological effect upon the conjunctival sac. The nerve to the nose, or nasal nerve, responsible for the sensation of the external nose and for a considerable portion of the interior of the nose, actually passed through the orbital cavity, and arose in common with the nerve to the eye from the ophthalmic division of the fifth nerve. The nerve before it left the orbit gave a considerable branch to the main nerve centre of the orbit, or ophthalmic ganglion, as well as branches to the conjunctiva. The ophthalmic ganglion was, moreover, directly connected with sympathetic branches round the middle meningeal and internal maxillary arteries, and so directly connected with the nasal or sphenomaxillary ganglion. The vascular supply of the nose is to a large extent dependent on and derived from the vascular supply of the orbit. The ophthalmic artery supplies branches to the roof, septum, and outer wall of the nose by the anterior and posterior ethmoidal arteries, and the calibre of these is again regulated by the sympathetic branches on the ophthalmic artery. Physiologically the interdependence of the eye on the nose is apparent. The nose carries away the secretions of the conjunctival sac, and disease of one sac may spread by continuity to the other. Operations or irritations in the interior of the nose invariably cause redness of the conjunctiva and an outpour of tears. Again, if the eye be exposed to strong sunlight, a feeling of tickling is felt in the nose, followed by an outpour of fluid and sneezing. With these anatomical and physiological facts to guide one, it would, to his mind, be strange and contrary to the laws of nature if affections of the nose and eye were not causal and interdependent one with the other.

Abstracts.

NOSE, Etc.

Avellis (Frankfurt).—*The Importance of Ulceration of the Mucous Membrane in Acute Empyema of the Nasal Accessory Sinuses.* "Archiv. für Laryngologie und Rhinologie," Bd. 11, H. 3.

Spontaneous recovery is the rule in acute inflammation of the accessory sinuses. Where this does not occur, the cause is usually some obstruction to the free escape of discharge, and with its removal there is healing.

Two cases of empyema of the frontal sinus, with exceptionally severe pain, which increased with the duration of the empyema, and where no improvement was obtained by intranasal treatment, were operated on in the acute stage. Ulceration of the posterior wall, with exposed superficial necrosis of bone, was found in both cases, which explained the occurrence of non-spontaneous recovery. *Guild.*

B. Fraenkel (Berlin).—*Hyperæsthesia of the Nasal Mucous Membrane.* "Berliner Klinische Wochenschrift," 1901, No. 15.

With reference to his former work on nasal reflex neuroses, Fraenkel emphasizes the important rôle which changes in the nasal nerves play. To demonstrate hyperæsthesia, liquor ammonia is used as well as a probe. A positive result is only obtained by the former in many cases. Surgical treatment of nasal reflex neurosis should be limited. He prefers cocaine as a means of overcoming the sensibility of the nasal mucous membrane, but he has also had good results from the use of orthoform. Of internal medicines, he places the salts of bromide first, with which he has had excellent results in hay fever.

Guild.

De Rosa Michele, Dr., Med. Capt. (Padua).—*Rhinitis Caseosa.* "Archiv. Ital. di Otologia," Torino, April to June, 1901.

The author describes three cases of this disease occurring in the clinic of Professor Arslan, who prefers the term *rhinorrhœa purulenta caseiforma*. In two cases there was empyema of the maxillary sinus, while in the third a large rhinolith was embedded in the cheesy mass.

Dr. Michele refers to the various etiological theories of this affection, and discusses at considerable length the specific theory of Cozzolino, that the scrofulous diathesis and some microbe, specific or otherwise, acting especially on the epithelium are necessary, as well as the common theory that the caseous masses are the result of retention, and that the disease should be regarded as an epiphenomenon of other affections (foreign bodies, tumours, chronic sinusitis). Cozzolino being unable to set aside the great number of facts in favour of the common view, hints at the possibility of two forms of caseous rhinitis, *the true and the false*. This view was supported by Guarnaccia in 1896 in a paper¹ in which he described the *Streptothrix alba* as the specific microbe of the *true* affection, while it was absent from other forms. Dr. Michele has collected 49 cases from the literature: True caseous rhinitis, 9; pseudo-rhinitis caseosa, 40, the latter divided etiologically as follows—sinusitis or rhinitis purulenta, 14; rhinoliths, polypi and

¹ *Archiv. Ital. di Laring.*, 1896.

other tumours, 14; cause not stated, 12. The nine cases of so-called true caseous rhinitis were those in which there was no evident cause in the history, and which were therefore believed to depend on the scrofulous diathesis and a specific micro-organism. It is generally argued that in view of the prevalence of the scrofulous diathesis the number of cases of caseous rhinitis ought to be much greater if it depended on that cause. Masini,¹ on the other hand, endeavours to turn this against the common theory by saying that, in view of the great frequency of nasal stenosis, foreign bodies, sinusitis, etc., the disease should be more common if it arose from these. Dr. Michele, relying on his statistics, contends that, while scrofula is very common, this disease is rare; that if it depended on scrofula it should be sometimes bilateral, while it is practically always unilateral. The rapid cure also excludes scrofula; there is, moreover, only one case of recurrence reported in the literature, that of Massei.

As regards the bacteriology, the author points out the results obtained, and gives a list of the organisms found in the cases reported as true rhinitis caseosa. The constant and specific form of microbe, which could be regarded as the essential cause of the malady, is wanting. He sums up the etiology of the disease, a *purulent secretion and an obstacle to its elimination*. Having referred to the more recent cases of Cozzolino, Wagner, Cimmino and others, he draws the following conclusions:

1. The small number of cases of *rhinitis caseosa vera*, with some exceptions, present the clinical features necessary for the disease according to the common theory. The rare exceptions leave room to doubt that the observations have been exact.

2. The rarity of the affection, the rapidity of cure and absence of recurrence exclude scrofula as a cause.

3. The disease cannot be regarded as microbic, because no specific microbe has been found.

He especially sets aside the *Streptothrix alba* of Guarnaccia, because it was found in a case of the so-called *false* disease, and even if it had been in one of the *true* it does not matter, as it so closely resembles the filamentous forms seen in pseudo-rhinitis. Moreover, the *Streptothrix alba* inoculated has never produced the disease in man or animal.

James Donelan.

Ostmann (Marbury).—*Obliteration of the Vessels in the Nose by the Galvano-Cautery, as a Preliminary to Intranasal Operations.*

"Deutsche Medicinische Wochenschrift," 1901, No. 14.

Ostmann recommends that the arterial supply of the nose should be stopped by the electro-cautery before operating on the nose. The loss of blood is reduced to a minimum, and the operation field remains clear.

Guild.

LARYNX.

Monselles, Salvatore.—*Papilloma of the Larynx in Children and their Treatment.* "Archiv. für Kinderheilkunde."

This is a lengthy paper of thirty pages, which gives a very full account of laryngeal papilloma. The pathology is fully discussed, with the help of quotations from various authors. The clinical history of some cases falling under his own observations is given. The various methods

¹ *Annal. di Laring. ed Otolog.*, 1900.

of operating, both externally and *per vias naturales*, are criticised. There is an illustration and description of an instrument used by himself, which is similar to one used and described by Massei in 1897 in an Italian journal.

Guild.

E A R.

Lermoyez and Mahu.—*A Simple Method of closing the Persistent Retro-auricular Orifice after the Petro-mastoid Operation.* "Annales des Maladies de l'Oreille," June, 1901.

The authors discuss two questions: (1) Why should such orifices be closed? (2) When should they be closed?

In reply to the first question they give the following reasons: (1) It is an unsightly deformity, and may interfere with business and social life. (2) It exposes the ear to exterior injuries. In one of the authors' cases the entrance of draughts of air into the orifice caused vertigo, an inconvenience which ceased when it was closed.

In discussing the second point, When should the opening be closed? the authors divide their discussion into that of cases in which the operation has been done for chronic osteitis, and those requiring operation for cholesteatoma. In the former instances, one must wait until (1) there is no residue of suppuration; and (2) the epidermis of the cavity left by the operation is dry, solid, and adherent, with no desquamation and no eczema. Six months usually suffices. In the second instance, the cure is very uncertain. One must wait until there is no sign of further cholesteatomatous accumulation, and there is free access of air to the whole of the diseased cavity. Certain other elements intervene in deciding the question of closing the opening: (a) The size of the meatus; (b) the seat and amount of the cholesteatoma; (c) the social status of the patient. These are discussed at length.

The authors then proceed to enter into the various methods that have been from time to time proposed for closing the opening; these methods are those of Stacké, Mosetig-Moorhof, Passow, and Trautmann. They then pass on to their own method. The patient is anæsthetized by chloroform; the temporo-mastoid region is shaved and rendered aseptic, as are also the meatus and other parts. Posterior to the opening two incisions are made down to the periosteum. These incisions are half a centimetre above and below the opening, and are joined by two other incisions to form a trapezium. The skin is raised down to the periosteum, going well into the cavity, thus forming two wings. These wings are turned inwards towards one another, and sutured so as to completely cover in the opening. To relax tension, a semilunar incision is made over the mastoid about 15 millimetres from the posterior incision. By this means one obtains: (1) A cavity closed by a cutaneous covering, which only communicates with the exterior by the auditory meatus; (2) a pinna definitely fixed in the normal position. Healing takes place in about five days. The paper is well illustrated by diagrams, and several cases with photographs are appended.

MacLeod Yearsley.

Schengelidze, Dr.—*The Pathogeny of Purulent Ear Disease in Infancy.* "Archiv. für Kinderheilkunde."

This paper, which is divided into five chapters, extends to forty-five pages. The first chapter contains a historical survey of the subject,

and there is a full literary reference to the various authors quoted. In the remaining chapters the following questions are considered: The usual frequency of suppuration of the middle ear in infancy; the bacteriological condition; the anatomical peculiarities, and the etiology.

Ninety post-mortems showed purulent otitis media in 70.5 per cent.; in over 1,000 cases tabulated from other observers the percentage was 76.7. Both sides were usually affected, and the tympanic cavity was never found to be sterile post-mortem. Tables are given of the various organisms and their relative frequency; they were homogeneous with those of the ostium pharyngeum tubæ Eustachii, naso-pharynx, and lungs. *Diplococci Fraenkeli* (82.6 per cent.) and *Staphylococci pyogenes albi* (52.1 per cent.) were the commonest. The anatomy and histology of the tympanic cavity are fully described. Tables are given of measurements at different ages, and illustrations of the microscopic anatomy. Guild.

REVIEWS.

Diseases of the Nose and Throat. By F. de Havilland Hall, M.D., F.R.C.P. London, and Herbert Tilley, M.D., B.S. London, F.R.C.S. Eng. London: H. K. Lewis.

This work was previously reviewed in this journal, and its reception by the profession has justified the production of a second edition. The present volume contains fifty pages more than the previous one, while the illustrations have been considerably increased.

Notwithstanding the fact that this comparatively small book deals with the important and extensive subjects of diseases of the nose, accessory sinuses, naso-pharynx, pharynx and larynx, the authors have successfully contrived to present it in a concise, readable and instructive manner. It has already taken its place amongst the many text-books at the disposal of the practitioner and student. In one respect this edition has been very much improved, viz., by the attention which is paid to surgical procedures generally, and specially in the regions of the accessory sinuses. The work is now edited by Dr. F. de Havilland Hall and Dr. Herbert Tilley. We have no doubt it will be appreciated by those it is intended to instruct, and that the second edition will also be well received.

Laryngeal Phthisis; or, Consumption of the Throat. By RICHARD LAKE, F.R.C.S. Rebman, London, 1901.

It is with pleasure that we welcome a monograph on laryngeal phthisis by an English writer, for the subject is one which has not received the attention of English laryngologists which its importance demands. One result of this has been that among all the recent advances in the treatment of this disease, not one can be claimed as having originated in this country. This is the more remarkable when we consider the great prevalence of phthisis throughout these islands, and the abundant opportunities which every medical clinique affords for the study of the disease in question. But we have also been extremely slow in adopting the advances in treatment which have been made elsewhere. This is so especially true of the surgical treatment

of laryngeal tuberculosis, that we cannot help raising the question why it is so. We believe that the cause has been twofold: first, that the humane feelings of the English surgeon make him shrink from operative interference in a disease where the ultimate outlook is so unsatisfactory; and secondly, that the deficiency of his training in the technique of intra-laryngeal operations renders him more or less incapable of carrying out the difficult manipulations this treatment demands.

The basis on which Mr. Lake founds the work before us—which he modestly says is less a treatise than a record of results—is his notes of over three hundred cases treated by him as in-patients at the North-London Hospital for Consumption. Though there has arisen in recent years a prejudice against treating cases of phthisis in hospital wards, we entirely agree with the author that the local treatment of laryngeal phthisis can be better carried out in hospital than in an out-patient department. This applies specially to the surgical treatment of that disease, for which Mr. Lake is a strong advocate. Though only twelve of his cases are related in detail, the results obtained in most of them fully justify the line of treatment adopted. In others, however, one is not quite convinced that a milder method would not have been quite as satisfactory. For example, he records a case in which he removed the whole epiglottis with the galvano-cautery snare to relieve severe dysphagia, the patient dying four weeks after from the pulmonary disease. One cannot help feeling that such a case might have been sufficiently relieved by milder methods, and the patient permitted to die without undergoing a painful operation.

We notice that the author speaks of this case “as the only case in which this radical operation has so far been attempted.” He has evidently overlooked a case recorded over twenty years ago by Solis-Cohen, in which he removed the whole epiglottis for tubercular disease, and another related by Hajek some few years ago.

While we do not wish to at all discourage the surgical treatment of laryngeal phthisis, which we think, with the author, has been far too little practised in this country, we are of opinion that great care is necessary in the selection of cases. That Mr. Lake exercises this care we have no doubt, but this is not sufficiently indicated in the directions as to “choice of treatment.” This is no doubt partly due to the limits he had set himself in regard to the size of his book, and perhaps also to his peculiar good fortune in having met with no untoward results in his own cases. “Hæmorrhage there is none,” in his experience, even from “free removal” of intra-laryngeal tissues, an experience which is by no means universal. This has naturally made him very bold. For example, in tubercular infiltration of the ventricular bands, thorough removal with cutting-forceps is advocated without any qualification, although so expert and bold an operator as Heryng considers the danger of hæmorrhage so great, when firm infiltrations are removed from this region with cutting-forceps, that he advises the use of electrolysis instead. Again, the author says, “in almost every case of inter-arytenoid thickening, one should operate with only very moderate delay to test the efficacy of treatment.” But are there not cases in which an inter-arytenoid thickening is really a reparative process, the production of fibrous tissue arresting the local progress of the disease? In this connection we may recall the advice of Schech, who says that: “Infiltrations of the posterior wall which do not cause symptoms should be left alone.”

Of local applications Mr. Lake has got the best results from the use of a 5 per cent. solution of commercial formalin, followed immediately by a 3 per cent. to 10 per cent. solution of freshly-prepared protargol. For out-patient practice, at least, this has the serious disadvantage, compared with lactic acid, that it requires daily application.

Like many other observers, Mr. Lake has not found sub-mucous injections a satisfactory method of treatment, and does not recommend them. He experimented with a solution of chloride of zinc—20 grains to the ounce—with the result in one case that an “enormous superficial slough” formed over the site of the injection.

At the end of the work there is a large number of excellent coloured drawings, which well illustrate all the characteristic lesions of the disease under discussion.

We heartily commend Mr. Lake's little volume, not only to specialists in laryngology but to all practitioners of general medicine. We do not know of any English treatise which will give them such a forcible idea of what modern laryngeal surgery can do to relieve, and sometimes cure, what was formerly regarded as a hopeless disease. We trust that the author will soon find it necessary to issue a second and enlarged edition, giving his later experiences. Might we also request him to give more attention to literary form in that next edition, as our pleasure in reading the present one has been marred by not a little slipshod English and careless proof-reading?

Thérapeutique des Maladies de l'Oreille (avec 45 figures dans le text);
Therapeutics of Diseases of the Ear (with 45 figures in the text).
M. LERMOYEZ and M. BOULAY. Paris: Octave Doin, publisher,
1901.

In a former volume of the JOURNAL OF LARYNGOLOGY the present writer had the pleasure of reviewing a work by Dr. Lermoyez on “Diseases of the Nose”; he then dwelt on the clearness and admirable logical arrangement of the subject-matter, which was remarkable even among French works, in which these qualities are the national characteristic. No less can be said of the present work, in which Dr. Lermoyez has had the co-operation of Dr. Boulay.

The book commences with a description of the method of examining the organs of hearing, with that insistence upon the small details which many writers for the sake of conciseness are apt to omit, but upon which success in practice so much depends. It need hardly be said that asepsis is strictly enforced from beginning to end, as those would expect who have read the abstracts of Dr. Lermoyez's various contributions as they have appeared in the JOURNAL OF LARYNGOLOGY. Nearly one-half of the first volume is devoted to a description of the various methods of treating diseases of the ear and the technique of the appliances employed for the purpose. If there is one chapter in the book more deserving of attention than another, it is that on the treatment of chronic purulent otitis media, which deservedly occupies nearly one-half of the second volume; it bristles with practical hints, the smallest detail being dwelt on with the utmost precision. We have no hesitation in saying that the greater the experience of the reader the more valuable will he consider this portion of the book. The schematic drawings illustrating the methods of “plastic” in the operation will help the beginner over points which we find puzzling to the student. The scheme on p. 121 showing the relations of the external semi-

circular canal, the facial nerve, the entrance to the aditus with Stacke's guide *in situ*, and the "bridge" of bone, the removal of which forms the crux of the radical operation, is worth to the intending operator the cost of the whole book.

In a work where everything is treated in such detail the inexperienced reader may to some extent lose the sense of proportion, and be diverted to smaller points away from those which are of the greatest importance, but at the same time, whoever studies this valuable work with the care which it deserves is not likely to overlook any detail in treatment, great or small. For the teacher the work is invaluable. The writer of the present review has on former occasions expressed his indebtedness to Dr. Lermoyez for many schemes of classification in different departments of the speciality which have helped him, not merely in clearing up his own views as a student, but in facilitating greatly the conveyance of these views to those whom he has had the privilege of teaching. He is confident that others will find the same help, and will gratefully avail themselves of this product of the joint industry of Drs. Lermoyez and Boulay.

The book consists of two extremely handy, clearly-printed and charmingly-bound volumes, which appeal not merely to the intellect, but also to the sight, the touch and the muscle sense.

It may be added that the statement "45 figures in the text" is erroneous, and it does not do justice to the amount of illustration. The figures attain a very much greater number, the first volume containing seventy-one and the second forty-five. *Dundas Grant.*

BOOKS RECEIVED.

M. Lermoyez ; M. Castex.—*XIII Congrès International de Médecine.* Section de Laryngologie et Rhinologie, M. Lermoyez. Section d'Otologie, M. Castex. Masson et Cie., Paris.

R. Krieg.—*Atlas der Nasenkrankheiten*, Lief. 5, 6, und 7. Ferdinand Enke, Stuttgart.

Transactions of the Twenty-second Annual Meeting of the American Laryngological Association, held in Washington, 1900. Carey Printing Co., New York, 1901.

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THE STUDY OF LARYNGOLOGY IN THE UNIVERSITY AND IN
THE HIGHER MEDICAL EDUCATION.*

BY JOHN N. MACKENZIE, M.D.,

Clinical Professor of Laryngology and Rhinology in the Johns Hopkins University, and
Laryngologist to the Johns Hopkins Hospital.

INSTEAD of making the usual report on the year's progress in the speciality, I will depart from the prescribed routine and call your attention to a subject which is of vital importance both to the laryngologist and to the profession at large.

At the outset I wish it to be distinctly understood that I shall speak only of undergraduate instruction in schools of the very first rank, and not of the more elaborate training of the post-graduate for special work.

The study of laryngology has been grossly neglected in the medical schools of this country and Europe. It is either omitted entirely from the schedule of studies, or, in many colleges at least, it is taught in a superficial, perfunctory sort of way that inspires neither faith in the instructor nor interest in the student.

Although the catalogue often tells in glowing terms of a course on laryngology, such a course will be found in practice to be like the "Co." in "A. Tetterby and Co.," "a mere poetical abstraction, altogether baseless and impersonal." In very few schools is it taken at all seriously, whilst in only one is it an obligatory study

* Remarks made by the Chairman in opening the Section of Laryngology, Rhinology, and Otology at the American Medical Association, June 4, 1901.

and a requisite for the degree. It seems to me, therefore, that the time is ripe for the discussion of its place in the University and in the higher medical education.

Importance of a Study of Laryngology, and its Proper Place in the Curriculum.—I use the term “laryngology” in its broadest sense to denote the anatomy, physiology, and diseases of the upper respiratory apparatus, together with its connections and appendages, or accessory cavities. In this latter category may be placed the pharynx and the middle ear.

The position assigned to laryngology in the University has been hitherto not at all commensurate with its importance, and yet of all the pure specialities—that is to say, those branches requiring special technique and special instruments and methods of precision—it is the most generally useful to the diagnostician and general practitioner.

The time has gone by when it should be necessary to press the claims of laryngology to recognition of the highest rank. We no longer apologize—we demand. There was a time when laryngology meant little more than the art of laryngoscopy, and it was often prostituted to inferior use. It is no longer a simple method of examination and demonstration, but an enduring vital force in medical progress, which lives, and breathes, and has its being, within the very heart of internal medicine itself. It is no longer the Canaan of the quack, but a fair land of promise for the highest order of research. It should, therefore, hold high place in the curriculum of the college and University. It should have a separate well-equipped department and a full professorship. While I do not wish to overestimate the relative value of laryngology in a scheme of medical education, and while I am fully conscious of the present congested condition of the schedule and the future necessity of a large number of elective studies, I am of the opinion that, in view of its very great importance, it should remain, as it is in the curriculum of the Johns Hopkins University, an obligatory study. If laryngology and ophthalmology should ever disappear from the list of compulsory studies, they should be the last to go. Their exile from a curriculum in which they have been once established would be, not an act of progress, but of retrogression.

The Future of the Laryngoscope.—A knowledge of the use of the laryngoscope will in the future be as necessary to the equipment of the advanced physician as is now a knowledge of the physical examination of the chest. It is absolutely invaluable to the diagnostician, for it is especially useful in the *early* detection of

disease, often pointing, long in advance of classical signs and symptoms, the way to grave disorder. Time was, not very long ago, when physical diagnosis of the chest was not required of the medical student, and when the special knowledge of the art was supposed to be, and practically was, confined to the few. Now every practitioner of medicine knows, or thinks he knows, it all. The laryngoscope will go the way of the stethoscope, and become the common property of the general practitioner of medicine. It will be an absolute necessity in that speciality which, next to surgery, is the highest of them all—the great special study of the future—internal medicine. The time will come when the art of laryngoscopy will be linked to general medicine as the art of physical diagnosis has become its inseparable associate.

Increasing General Knowledge of Laryngology.—When, twenty-three years ago, the conception of creating the American Laryngological Association, the oldest special society of the kind in the world, arose in the brain of its too-early-lost founder, it was hardly possible to gather together more than a corporal's guard of men of national reputation in this department of medicine. Now, the complexion of things has entirely changed. While at that time the specialist was found only in the larger cities, now there is scarcely a hamlet in the land that does not contain a laryngologist: indeed, in recent years the laryngologist has, in some quarters at least, proliferated to an alarming extent.

There will come a time in the future—in the near future, perhaps—when the boundaries of the speciality will be almost indefinitely extended. The great advance which laryngology has made in recent years, the rapidly growing necessity of a knowledge of its special province in the elucidation of obscure conditions in adjacent and remote organs of the body, the popularity of its study, and the accordingly rapidly increasing number and far-reaching geographical distribution of its votaries, will, in the course of time and in the nature of things, lead to such a congested state of the speciality that many will either be driven into the ranks of general medicine or compelled to take up some other line of special work in connection with their original speciality. This has already been done in the smaller towns and in the great centres of population in the progressive West, where ophthalmology is the inseparable associate of laryngology and otology. The rational practice of the latter is impossible without a thorough knowledge of rhinology and diseases of the throat, and nothing is more illogical and grotesque than its solitary association with ophthalmology, except, perhaps, the combination alleged to have been practised by a distinguished

foreign ovariologist, who took no cases except abdominal tumours and diseases of the ear.

While a more general knowledge of laryngology may have its drawbacks, if we look at the subject from a purely commercial point of view, it may have, among other things, a salutary effect in relegating to the rear that unfortunately numerically large element in our midst whose only claim to special knowledge resides in the possession of the necessary apparatus which go to make up the armamentarium of a worker in this field.

Development of the Study of Laryngology.—Let us now turn to the development of the study of laryngology by undergraduates in our medical schools, if, indeed, we may speak thus of a study which has practically just begun; and in doing so you will pardon me if for a moment I am personal and reminiscent. Perhaps I can best illustrate the different phases of its development by giving you a chapter from my own experience.

Twenty years ago, when I was on the working staff of the then largest throat and nose clinic in London—the hospital in Golden Square—there was no place in that vast Metropolis where the student could get systematic instruction in special work. None of the colleges or hospitals gave lectures on laryngology—nowhere was it requisite for the degree. All strangers in London interested in the speciality came to Golden Square, attracted there by the personality of Morell Mackenzie, then at the zenith of his popularity and power. With all the vast material at our command, there was practically no instruction given, except in the way of hasty demonstration of cases; and if the student or visitor learned anything, it was through close personal observation on his part, and not through any gigantic effort to impart knowledge on the part of the medical staff. With one or two exceptions, the latter directed their attention almost solely to the larynx and thyroid gland, and the nasal passages were only examined when in quest of a polypus or when the attention was irresistibly attracted to these organs by the horrible stench of an ozæna. The nasal cavities were practically neglected, and the only apparatus in the hospital for the treatment of these diseases consisted of a pair of forceps for the removal of nasal polypi and a hand-ball atomizer with a detergent solution for the treatment of ozæna or any other miscellaneous disease of the nose that might irresistibly obtrude itself upon the recognition of the medical staff. When, later, I studied on the Continent, I found a like condition of affairs. In no school was laryngology taught to undergraduates, and the only means of acquiring special knowledge of the subject were the

imperfect courses on diseases of the larynx given by the professors and their assistants. There was no special course in rhinology, which subject, as in England, was left severely alone. I returned to my own country to find the same neglect of the study of laryngology that I had found in England and on the Continent.

In 1887 I was called to the chair of laryngology and rhinology in one of the oldest medical schools in America. The annual catalogue and circular told in flamboyant terms of a course on laryngology, which at once set the mind to wondering how it would be possible for a student to escape from the institution without absorbing all that was coming and all that had gone before in that imperial domain. On my induction into office, I cast about me for the paraphernalia which should accompany my lofty position. I found in a dark closet or hole which led under the seats in the amphitheatre where the lectures and clinics were given a dilapidated lamp, whose structure and general appearance of antiquity suggested the possibility that it might have been originally trimmed by some spirit in the age of fable; a broken laryngeal mirror, from whose back the quicksilver had long since departed; and a cardboard diagram coloured blood-red, like an eczema, which was supposed to represent the laryngeal image, but looked more like a vulva on fire. These crude implements of the laryngoscopic art I found—and a tradition. According to this tradition, my predecessor in office was accustomed to meet the class at the opening of each session, and, after a few introductory remarks, disappeared with a patient into the closet under the seats and closed its door. There was a period of breathless silence and intense expectation on the part of the students, during which time all manner of strange noises were heard in the darkness beneath them. These finally ceased, and the professor reappeared, his face radiant with satisfaction, and advancing toward the class, with the laryngeal mirror held aloft, triumphantly exclaimed, "Gentlemen, I have seen the vocal cords."

According to the same tradition, that was all the laryngology the class got during the session. The quarters assigned to me in the dispensary, where the patients were examined, consisted of a little compartment or "box," from which all sunlight and fresh air were carefully excluded, and in whose foul atmosphere two of my assistants subsequently (probably) contracted tuberculosis. It was thus thoroughly equipped, and under such cheerful conditions, that, without either moral or financial support on the part of the executive branch of the institution, I began the task of teaching practical laryngology to undergraduate students. Fortunately I had excellent

assistants, with whose aid I soon built up an excellent clinic, so that we were enabled to give the men during the session demonstrations of most of the diseases of the upper air-tract and all the common operations on the nose and throat. I gave the lectures and clinics, and my assistants superintended the instruction of the students in the dispensary. Although attendance in the department of laryngology was not compulsory, and although no examination was ever held in this branch, the course was largely attended, and many became so much interested in the subject that they subsequently took it up as a speciality.

In 1889 the Johns Hopkins Hospital threw open its doors, and several years later (1893) the medical school in connection with it and the University was formally opened.

The Johns Hopkins University deserves the credit of being the first institution of learning, either in this country or beyond the seas, to give to laryngology the prominence which its place in medical education demands. It was the first to make it an obligatory study in the curriculum, and to make an examination in this branch a requirement for the degree of Doctor of Medicine. This was one step, and in consideration of the former neglect of the subject a prodigious one, to place laryngology where it properly belongs, and to give to it the position and prestige to which it is justly entitled. It therefore marks an important era in the evolution of the undergraduate study of laryngology. If for no other reason, then as a matter of historical interest I will ask your attention for a few moments to the method of teaching the speciality which has been adopted in this institution. I shall content myself with simply giving a mere outline of the work, and shall not enter into matters of detail.

Study of Laryngology in the Johns Hopkins Medical School.—The time required for the degree of Doctor of Medicine is four years, of nine months each. The requirements for entrance to the medical school are rigid, only those being admitted who give evidence of having had a liberal education, as indicated by a collegiate degree in arts or science, including an acquaintance with Latin, a reading knowledge of French and German, and adequate training in physics, chemistry and biology. The first two years are devoted mainly to practical work of all kinds in the laboratories of anatomy, physiology, physiological chemistry, pharmacology and toxicology, pathology and bacteriology. During the last two years much of the students' time is spent in practical work in the wards, laboratories and dispensary. It is not until the fourth year that the class enters the special departments. It is my intention to give a course

on laryngology in the third year, so that when the student enters his graduating or fourth-year course he may be at least familiar with the use of the mirror. I mention these facts simply to show that when the student reaches me he is pretty thoroughly trained, not only in the use of his brain, but also in the use of his hands. By constant practical work for three years he has acquired an amount of manual dexterity which enables him to master the art of laryngoscopy with relative ease.

The graduating class is divided into four sections; each section (of the fourth-year class) attends for an hour and a half daily during two months the laryngological and rhinological department, where they receive practical instruction from my assistants and myself. After preliminary drilling in the use of the laryngoscope and other technical procedures and in diagnosis, the student assumes the work of clinical assistant. He is given pathological material for examination and diagnosis, and is encouraged to report cases and read papers before the Hospital Medical Society, to look up the literature of interesting subjects connected with laryngology, to observe for himself, and, if he has time, to do original work. He is taught to investigate and to inquire, and I may say just now that it often requires a very high order of human ingenuity to construct an evasive answer to some of the conundrums with which I am frequently assailed. He takes his first lesson on the human subject—gets his first impression from nature. I formerly used models; but someone stole them, and I am glad they are gone.

By the above method the teacher comes into direct personal contact with each member of the class, and is enabled to measure the mental status of the individual. In no other way can laryngology be properly taught. It is hard work, but it pays in the results which are accomplished. Laryngology cannot be taught by text-book or lecture. It must be taught over the shoulder of the instructor, and, on the part of the student, must be acquired by direct contact with, and personal observation on, the living subject.

While the didactic lecture is fast becoming an anachronism, I do not believe that the day of its usefulness is completely gone. I give a systematic course of weekly lectures to the entire class, which are supplemented by pathological and clinical demonstrations, on the anatomy, physiology and commoner diseases of the upper air-passages and their relations to morbid processes in other parts of the body. In this course especial attention is paid to diagnosis. The object of these lectures is twofold: (1) To give in a concentrated form and in the shortest possible time information which

could not be acquired except by great additional labour on the part of the student, and (2) to avoid endless repetition in the section-room.

In the matter of text-books and literature, the class is shown the principal works and current periodicals in English, French and German. No special text-book is recommended or required, but, in connection with the lectures, the students are referred to special articles and monographs containing the classical literature of each special subject.

The question of the value of examinations is a very important one, and one which is destined soon to be pressed to final settlement. While I cannot go as far as my gifted friend and colleague, Professor Mall,* who is of the opinion that it would be well to separate them from the course of instruction entirely, I must confess that I am very much in sympathy with him in the main points of his contention. But until a more rational and exact method of accomplishing the same results be devised, I am afraid the examination must remain as a necessary evil. It is often a farce. One of the best examination-papers I ever received was from a student who, on account of a serious illness, was compelled to absent himself from the very lectures on which the class was being examined. He had used the notes of a fellow-student, and came back at me almost with my own words. In the University in which I received my first medical degree, instruction, except in the department of anatomy, which was practically and ably taught, was entirely by didactic lectures. We sat all day in the lecture-room taking notes, and spent the entire evening "cramming" them for the next recitation. We never saw a medical case. Once during the session the Professor of Surgery brought in the coloured janitor, stripped him and bandaged his legs and arms. This was our only course in practical surgery. Those were the good old days, when, as Mall says, the student "heard much, saw little, and did nothing." When the day of examination arrived, I knew my text and note books from cover to cover, and could locate with unerring accuracy any required item of information to the page and to the line. My memory was so saturated with medical lore that it took me some years after I left college to forget it. I was invincible in the examination-room, but helpless at the bedside.

The best examination is the observation of the student in his daily work, and the resulting estimate of his personal equation.

* "Liberty in Medical Education," *Philadelphia Medical Journal*, April 1, 1899.

During the first two years I gave an oral examination at the end of the term, carrying each student over the entire field covered by the lectures; but, as the size of the class increased, this had to be abandoned, and I now give a single written examination; the following, which was my first, is an example:

I. Give the physiology of the nasal and accessory cavities.

II. General symptoms and diagnostic signs of suppuration in the nasal accessory cavities—diagnosis of pus in the antrum maxillare.

III. Early laryngoscopic diagnosis of tuberculosis and cancer; characteristics of syphilitic, cancerous and tubercular ulceration in the upper air-passages.

IV. Chief causes, symptoms and laryngoscopic signs of double complete abductor paralysis.

V. Nature and diagnosis of so-called nasal reflex neuroses.

Out of a class of thirty-four there were only two who failed to pass.

This, in brief, is a simple outline of the way in which laryngology is taught in the Johns Hopkins Medical School. I am fully aware of the imperfections of the method, but everything must have a beginning, and time and further experience will doubtless make it more perfect. In the classes under my care it has so far been very successful. The net result is that when the student graduates he has made a very fair groundwork on which to base in the future, if he will, a more elaborate study of the speciality.

Laryngology the Inseparable Associate of General Medicine.—In teaching laryngology, the instructor should for ever bear in mind, and the student should never be allowed to lose sight of, the fact that it is an inseparable part of general medicine; that the pathology of nasal and laryngeal diseases is not an isolated pathology; that the appearance of disease in the upper air-tract is governed by the laws that condition the development and course of disease in general; and that the rational interpretation of these affections presupposes, therefore, the application of general pathological principles to the peculiar conditions which the anatomical and physiological functions of the structures involve. Above all, he should remember that peculiarity of structure is not anatomical isolation; he should remember the correlation of organ and organ, the sympathy of tissue and tissue, which makes up the perfect physiological life of man. In looking upon the subject from the high vantage-ground of general pathology and laws of health, the student is in a better position to apprehend the rôle which external and internal influences play in the evolution of disease of the

respiratory apparatus, than if he viewed the subject from the level of a narrow specialism or from the standpoint of the mere empiric.

Fraternity and Co-operation among the Different Departments of Medicine.—Laryngology should not be studied apart, but kept in constant and closest contact with all the other departments of the University. Let there be more fraternity among the different specialities, more co-operation. If special workers in the different departments of medicine would, instead of holding aloof from each other, combine the special knowledge they possess in a common endeavour to elucidate the difficult problems which daily confront them, the hostile cry of ignorant criticism, which is so often directed against them, would be for ever silenced by their discoveries for the common weal.

High Ideals in the Study of Laryngology.—The study of laryngology will never reach the full fruition of its hopes and aspirations until it becomes the inspiration of a higher effort and a loftier ideal. Let it teach the student not to contract, but to broaden, the horizon of his intellectual activities. Let it make him understand that the laryngoscope is not merely a device for exposing hidden recesses of the body and for the demonstration of that which is already known, but an agent of positive power in future research, a means of scientific expansion and exploration of the unknown. Let laryngology walk with becoming humility beside the great pioneer forces of human endeavour, aiding them, it may be, in a humble and unostentatious way, but still contributing to their progress through the trackless wilds of the land that is untrodden and unknown. Undaunted, undismayed, let them press forward side by side until the wilderness shall blossom as the rose, and Nature's wild forest ring with the shout of their exultant discovery.

When this ideal shall have been attained and this conception of our art is realized, then will the study of laryngology blaze the way for the triumphant march of scientific medical achievement, and the laryngoscope will become an instrument of progress and power.

SOME DETAILS IN EUSTACHIAN CATHETERIZATION.*

BY DUNDAS GRANT, M.D., F.R.C.S.,

Surgeon to the Central London Throat and Ear Hospital.

IT is not merely flattering to the vanity, but favourable to the interests of the practitioner, to succeed in passing the Eustachian catheter up a nostril through which others have been unable to do it. I have no doubt that every aurist of experience has some dodges of his own which help him through difficulties into which others have fallen. No doubt in some cases in which I have failed others have succeeded, but in some, if only a few, the converse has been the case.

In those cases the difficulty which has baffled the operator who has unsuccessfully preceded me has been the steering of the catheter past some deformity of the septum, whether a deflection or thickening. In most cases the obstruction has been a ridge of some sort running obliquely upwards and backwards, but sometimes a so-called scoliosis, bulging low down in front so as to come close up to the outer wall of the nose and almost obliterate the visible opening of the cavity. In many of these cases discomfort and disappointment have resulted from the operator not having made a preliminary rhinoscopic inspection of the nares, and I would lay down as a rule that the Eustachian catheter should never be employed without such an examination having been made. As a rule, the application of a weak solution of cocaine, either by a spray or brush, facilitates the catheterization by diminishing the patient's sensitiveness and reducing the vascular turgescence of the mucous membrane. In some cases the passage of the catheter through the nose is greatly facilitated if the nasal speculum is used at the same time, the sense of touch being greatly assisted by the sense of sight. In some instances this help must be dispensed with for reasons which will be given later on.

In the case of an oblique ascending ridge on the side of the septum, it may be taken as a general rule that the catheter should be introduced with its beak pointing towards the septum and underneath the ridge, then when it is in this way pushed back as far as it will go the point should be turned downwards and outwards underneath the inferior turbinated body and upwards into the hollow, and then upwards and outwards into the vault of the inferior meatus. It is sometimes necessary to withdraw the catheter slightly before engaging its point under the inferior turbinal; the instrument is then pushed steadily backwards until it is felt to be

* Paper communicated to the Meeting of the British Medical Association, August, 1901.

free in the naso-pharynx, when it can be turned downwards and hooked over the back of the soft palate. In some cases, where the septal ridge diminishes rapidly and considerably towards its posterior part, the beak of the catheter need not be turned under the turbinal at all, but kept pointing upwards under the septal crest until the naso-pharynx is reached. This proceeding is greatly facilitated if the point of the nose is pressed forcibly upwards.

When the inferior turbinal projects considerably, and the septal spur is not very great, it is sometimes advantageous to pass the catheter above the turbinal till its tip, pointing downwards, reaches the naso-pharynx, when, by a little steady downward pressure, the stem of the catheter may be forced down between the turbinal and the crest on to the floor of the meatus. When the septal projection extends outwards so far in the inferior meatus as nearly to occlude the orifice, the nasal speculum must be removed, so that the tip of the nose may be forcibly pressed towards the opposite side of the face. The point of the catheter is then introduced under the septal projection, the stem being directed towards the opposite side of the face, pressing the tip of the nose with it. This will often permit of the catheter, lying, as it were, on its side on the floor of the nose, being pushed in till its angle approaches the middle part of the inferior meatus, where the passage widens out considerably. By a little gentle *tâtonnement* the operator will find whether the point of the instrument should be turned upwards or downwards, so as to be coaxed through into the naso-pharynx with the least difficulty. In another class of case there is a projection from the septum at the junction of its posterior and middle third, presenting a somewhat arched shape on inspection. When this is present, the passage of a sufficiently curved catheter is quite impossible as long as the usual rule is followed of turning the beak downwards and pushing it along the floor of the nose. The catheter must, on the other hand, be placed with the back of its beak on the floor of the nose after the manner of the head of a golf-club; and to allow this position to be maintained while the catheter is pushed sufficiently far back for its tip to get in the arch-like projection, it is necessary for the tip of the nose to be tilted upwards and to the opposite side. In this case also the nasal speculum must be removed. The writer believes that by carrying out these rules he has obtained success in passing the catheter in cases in which he did not expect it, but he doubts not that others have had the same results by following them intentionally or unwittingly. In any case, he would strongly commend them to the consideration of those who think their success in Eustachian catheterization still leaves something to be desired.

I have made no reference here to the usual rules for the passage of the Eustachian catheter, which are or ought to be familiar to all who use the instrument, or to its use through the opposite nostril, in case the nostril of the affected side is obstructed. Ardent nasal operators recommend that when an obstruction exists such as prevents the introduction of a Eustachian catheter this fact is sufficient to justify the removal of the said obstruction; but we must reflect that the passage of the Eustachian catheter may be impeded by an obstruction which merely produces a tortuosity rather than a stenosis of the passage, and does not prevent the free admission of air to the naso-pharynx and Eustachian tube, although it interferes with vision and the passage of a Eustachian catheter. The obstructions, as seen through the rhinoscope, are thus, so far as aeration is concerned, even more apparent than real. I make bold to say that an application of the rules I have laid down will greatly diminish the number of cases in which the passage of the Eustachian catheter is impossible, apart, however, from the question of the injurious influence of this obstruction on the organs situated behind it.

I have not touched the question of the indications for the use of the catheter rather than the Politzer bag, but I will assume that all are convinced that in many cases such indications exist.

I need hardly remind my hearers of the occasional occurrence of complete congenital or acquired occlusion of one, or it may be both, posterior nares, which is sometimes only detected when an attempt is made to pass the Eustachian catheter. In all my cases of this anomaly I have found the nasal cavity of the affected side filled up with a white glutinous secretion resembling the starchy paste used by a laundress.

I may be reproached for dwelling with unnecessary insistence upon what are mere minor details, possibly beneath the consideration of such an assemblage as the present, but I may remind you that it has been said that he who would command success must have an almost ignominious love of detail, and of no one, I believe, is this more true than of the specialist and of those who would wish to do like him.

SEROUS DISEASE OF THE MAXILLARY SINUS, WITH A
REPORT OF TWO CASES.¹

BY W. E. CASSELBERRY, M.D., CHICAGO.

Professor of Laryngology and Rhinology in North-Western University Medical School.

THE frequency of so-called "serous disease" of the antrum has been disclosed only of late by systematic resorts to exploratory puncture in the search for empyema. The clinical picture of acute rhinitis associated with acute inflammation of the maxillary or frontal sinus is not unusual, and the condition has been verified at autopsies. Acute sinusitis may terminate in spontaneous recovery, in acute suppuration and then recovery, in chronic suppuration, and probably in chronic catarrhal sinusitis. The existence of the latter with retention of muco-serum is also verified by autopsy. Whether it can result in the retention of a serous liquid as in so-called "serous disease" which is not cystic is still a subject of discussion. Only large accumulations are described in the older literature, to which the term *mucocoele* and *hydrops antri* are given. Early objections were made to the latter term, it being maintained that the fluid was not free in the sinus, but contained in a cyst.

Recently smaller, often insensible accumulations of muco-serum and serum are found to be relatively frequent. Noltinius reports thirty-seven cases, and believes the fluid to be free in the antrum, which view is confirmed by other clinical and anatomical observers. But certain other anatomical sections support the frequency of cysts, and Alexander maintains that the condition is always cystic. The following cases favour the possibility of a free serous fluid—that is, a "hydrops inflammatorius," or so-called "serous disease." The first case is really one of acute sinusitis with retained muco-serous secretion, but it is serviceable for comparison of the fluid with that of the second case, one of chronic "serous disease."

CASE I.—Mr. G. S. I——. Recurrent nasal polypi. No purulent discharge, nor shadow on transillumination at this time. Resection of middle turbinated bodies and removal of all tangible polyps. Some months afterwards an acute influenzal cold, with pain and cedema through the left cheek. Transillumination gave diminished clearness of the left side. Aspiration by Schmidt's needle in the middle meatus yielded a syringeful, 4 c.c., of a clear straw-coloured muco-serous fluid. This coagulated in part spon-

¹ Author's abstract of paper read before the American Laryngological Association, May 28, 1901.

taneously, and on being centrifuged gave a residuum of one-eighth bulk which microscopically showed a fibrous-like mass with a few epithelial and lymph cells. No cholesterin crystals. The supernatant liquid wholly coagulated on boiling. Later suppuration followed, and persisting, eventually an opening was made in the anterior wall. Palpation with the little finger disclosed nothing. Sinus moderately curetted. Complete recovery.

In Case I. the large amount of albumin and the lymph-corpuscles would indicate a mucous rather than a cystic secretion, and the fibrin indicates an inflammatory origin of the fluid. The question arises whether transformation from a muco-serous fluid to pus might not have been due to infection by the exploratory puncture, but in view of the fact that the puncture was made aseptically, and that the many punctures to be recorded in Case II. had no such effect, the suppuration must be ascribed to other causes inherent in the case.

CASE II.—Mrs. C. S.—, aged sixty-two years. Examination October 23, 1900. Bilateral multiple nasal polypi and consequent mouth-breathing, which was her sole complaint. Both middle turbinated bodies greatly enlarged, and in a state of polypoid transformation.

October 30. The transillumination test showed the infra-orbital crescent on each side diminished, but not in complete shadow. Aspiration of the left maxillary sinus through the nasal wall in the middle meatus yielded a syringe-ful, 4 c.c., of a viscid transparent fluid.

November 13. In order to free the upper part of the nostril of an impacted mass of polypoid tissue, to remove obstruction from the osteum maxillare, and expose polyps attached to the border of the hiatus, resection of the left middle turbinated body was made by the author's method.

January 8. Repuncture of the left antrum was now entirely negative, both on aspiration and irrigation. At the same sitting aspiration of the right maxillary sinus yielded a syringe-ful of similar fluid, this preceding any operating on that side.

January 22. Repuncture of the right antrum yielded two syringe-fuls, 8 c.c., of a clear straw-coloured viscid fluid. Aspiration through the inferior meatus yielded an additional half-syringe-ful of identical fluid, now blood-stained from previous punctures. Irrigation produced a counterflow through the osteum maxillare, but only under heavy pressure.

January 29. A fourth aspiration of the right antrum yielded a syringe-ful of very bloody fluid, probably made saneous by the

leakage of blood into the sinus during snaring of polyps from the middle meatus three days ago, or else by the puncture made a week ago.

February 5. A fifth aspiration of the right antrum again yielded a clear serous fluid. A resection was now made of the degenerated right middle turbinated body, with a large polypoid mass and polyp-buds attached.

February 25. The sixth puncture test of the right antrum yielded only a few drops of a clear fluid mixed with numerous air-bubbles.

March 19. Aspiration and irrigation of both antra were now entirely negative. There was no discharge and no discomfort. It would seem that natural drainage of the maxillary sinuses had been restored by removal of obstruction from the nasal surfaces.

Chemical tests showed the presence of serum albumin, as well as what appeared to be a trace of mucin, the amount of the latter substance, however, being too small for positive identification.

Direct cover-glass smear preparations showed no bacteria, but two culture tubes contained good large colonies of *Bacillus coli communis*.

From a second bacteriological examination, some of the tubes remained sterile; in others a few scattered colonies appeared, cultivations from which resulted in the separation of four species: *Micrococcus cereus albus*, *Bacillus subtilis*, Friedlander's pneumonia bacillus, and a small bacillus with the name not determined. The cultures indicated that there was not a specific bacterium present. A guinea-pig was inoculated subcutaneously with 5 c.c. of the fluid with negative results. Microscopic examination showed only a very few epithelial cells and red blood corpuscles.

It is, of course, impossible to specify the exact condition within these sinuses. The "serous disease" was bilateral, and if cystic they must have well filled the cavity on each side, for the fluid was withdrawn from the left side at the level of the middle meatus, and on the right side by repeated punctures at different locations in both the middle and inferior meatus. On the left side, if a cyst, it must have failed to refill after a single aspiration. On the right side, if a cyst, the irrigation counterflow through the hiatus and the mixture of air-bubbles with the fluid on the sixth aspiration are inexplicable. The fluid was, strictly speaking, muco-serous, but not the product of an acutely active inflammation, for it contained but a trace of mucin, few cellular elements, and little or no fibrin. It was so largely serous as to fall within the meaning of the terms "serous disease" and "hydrops inflammatorius."

The diagnosis of a serous accumulation, without distension or deformity, must be based upon aspiration. The transillumination test is indecisive, although in both my cases the light transmission was distinctly impaired, while not constituting a distinct shadow.

The treatment is in part suggested by the success in Case II. Obstruction to the ostium maxillare should be remedied, and to this end enlarged middle turbinated bodies should be resected and polyps removed. If cystic, or if recovery has not ensued by suitable nasal treatment, an opening in the anterior wall of the sinus sufficiently large for palpation, and then curetting, would seem to promise a cure, and perhaps forestall what would ultimately become an empyema.

OTOLOGY AS A COMPULSORY SUBJECT IN MEDICAL EDUCATION, FROM THE GENERAL AND THE SPECIAL POINTS OF VIEW.

THE interesting appeal on behalf of laryngology as a compulsory subject for medical graduation, so eloquently put forth by Dr. John N. Mackenzie, and reproduced in the present issue of the JOURNAL OF LARYNGOLOGY, cannot fail to impress our readers. We trust that it will indirectly exercise some influence towards bringing about this very desirable amplification of the medical curriculum.

To Dr. Mackenzie's appeal on behalf of laryngology we should like to urge the claims of the allied subject of otology. In this department of the healing art the most startling advances have been made in the direction of the successful carrying out of surgical operations in the case of the intracranial and other complications of suppurative inflammation of the middle-ear, to which so many deaths have been attributable.

With the improvement in medical education to which we have referred, we may look forward to the time when the general practitioner, by his judicious treatment of suppurative otitis in its acute stage, will be more able to bring about recoveries, so saving his patient from drifting into the uncertainties and dangers attaching to the disease when it enters on the chronic stage. This cannot, however, be expected to be achieved in every case, but the timely recognition of the stage of danger in the development of the sequelæ may be expected to lead to greater success, as the result of operation, than is now attainable.

In its neurological relations, a practical familiarity with the organs of hearing and their diseases is no less important. There

is probably no more distressing or life-poisoning condition than that of vertigo, and we cannot conceive of a rational investigation of a case characterized by this symptom being conscientiously carried out without an objective and functional examination of the organs of hearing. We do not for a moment shut our eyes to the many causes of vertigo, ocular, renal, cardiac, organic, etc., but we cannot help calling to mind numerous cases in which the subjects of long-standing vertigo have, from a condition of despondency and even despair, been restored to hopefulness and comfort after the adoption of comparatively simple otological treatment. For the general practitioner to realize the frequent causal nexus between vertigo and ear diseases, and to be in a position to recognise and treat the latter, would be a great gain to the public and no loss to the genuine specialist.

We might obviously cull from the field of otology numerous other instances to illustrate the advantage to the public of a wider dissemination of a knowledge of the subject, but those given above seem so indisputable that further evidence in support of our thesis appears unnecessary.

It may be said, with some apparent amount of truth, that this would be a step in the direction of cutting the ground from below the feet of the specialist. There is no doubt that the public interest would be greatly benefited by the change, and the credit of the profession would be all the more worthily maintained. Although from the narrow point of view the interests of the "specialist" may be thereby to some extent threatened, we feel sure that the specialist who is worthy of the name will always continue to hold his own. Those, however, who rush into any one of the "ologies" on the strength of the possession of a few special instruments and certificates of a six weeks' course, may very truly and very justly feel some uncertainty as to their ability to stand the criticism of the general practitioner, when equipped as the amplified regulations would oblige him to be. The *soi-disant* specialist who makes up for his limited knowledge of his own department by disclaiming all acquaintance with the other departments of medicine, is not the fittest to survive. The temptation to escape from the night-bell and the various discomforts attached to family practice induces many a mediocre practitioner to dub himself a specialist in the expectation of enjoying a lucrative and dignified ease. Desirable as the consummation may be, this is not the motive of action nor the frame of mind of the specialist who deserves well of the profession or of the public, and it would be little loss to either if practitioners of the class described were elbowed out of the places

to which they have so little claim. On the other hand there is always plenty of room at the top, and there will be a steady demand for that specialist who labours to make himself the best by digesting as well as accumulating experience, while at the same time keeping up his technical dexterity. For such specialists the extension of knowledge on the part of the general practitioner need have no terrors; on the contrary, the greater, or to be precise, the more exact the knowledge of any given speciality on the part of the general practitioner, the more ready will he be to recognise special diseases in their early stages, and to seek the assistance of the consultant at a time when his intervention may produce beneficial results creditable and satisfactory to all concerned.

HOSPITALS FOR DISEASES OF THE THROAT, NOSE, AND EAR.

THE growing demand by graduates and senior students for special instruction in diseases requiring instruments of precision for their elucidation and treatment is the natural outcome of the enormous progress in the science and art of medicine and surgery within recent years, and of the desire on the part of the public to benefit by that progress. The facilities afforded in this country for acquiring a practical clinical knowledge of diseases of the ear, nose, and throat are considerable. In London there is a wealth and variety of clinical material unrivalled by any other city in the world. We are able to give brief particulars of the arrangements made at special hospitals in London, and we hope in future editions to be able to supplement these, and to give particulars of other institutions in the country which provide similar instruction. Senior students, before completing the fifth year of the curriculum, would often find it to their advantage to visit the special hospitals and use the opportunities London affords for gaining technical knowledge.

The Royal Ear Hospital, Frith Street, Soho Square, W.

Courses of six weeks' duration in diseases of the ear and nose are given by the members of the staff throughout the teaching year. Students can attend one or more surgeons. The fee for each course (two clinics a week) is 1 guinea. The teaching is of a practical character, and the number of students is limited.

The Metropolitan Ear, Nose, and Throat Hospital, Grafton Street, Tottenham Court Road, W.

The hospital contains 17 beds for in-patients. The out-patient department is open daily at 2.30 p.m., and on Mondays at 6.30 p.m. Operation days: In-patients, Tuesday, Wednesdays, and Thursdays at 2 p.m.; out-patients, daily at 2.30 p.m. Medical practitioners and senior students are admitted to the clinical practice of the hospital. Courses of practical demonstrations are arranged to suit the requirements of those desirous of receiving instruction in the manipulation of instruments used in the diagnosis and treatment of diseases of the ear, nose, and throat. Fee for a course of one month, 1 guinea; of three months, 2 guineas. Special demonstrations of the pathology and surgical treatment of diseases will be given during the winter session. Clinical assistants are appointed, and have responsible duties in conjunction with the members of the staff.

The Throat Hospital (for Diseases of the Throat, Nose, and Ear), Golden Square, W.

This hospital was founded by Sir Morell Mackenzie in the year 1863, and has recently been rebuilt and its accommodation greatly increased. It now contains 40 beds for in-patients, three operating theatres, and a large and well-fitted out-patient room. There are over 50,000 out-patient attendances annually. Occasional professional visitors are welcomed, and the hospital is open to all medical practitioners and students for the purposes of clinical instruction upon the payment of a small fee (see advertisement), and from time to time courses of lectures are arranged, the dates of which are previously advertised in the medical journals. Operations are performed every morning at 9 a.m., except on Mondays, on which day there is a children's clinique at 9.30 a.m. Out-patients are seen at 2 p.m. daily, and also at 7 p.m. on Tuesdays and Fridays. There are eight senior clinical assistants, on whom considerable responsibility falls. They are appointed for six months, but are eligible for re-election. There are also a limited number of junior clinical assistants appointed to each surgeon, who have good opportunities of learning and practising the special work. All information can be obtained on application to the Dean of the hospital.

The Central London Throat, Nose, and Ear Hospital, Gray's Inn Road, W.C.

The hospital contains accommodation for 17 in-patients, and has a very extensive out-patient department, which is open to all

medical practitioners and students for the purpose of clinical demonstration and instruction during the hours of the surgeons' visits. Operation days: In-patient department, Tuesdays, 2.30 p.m.; out-patient department, Tuesdays, at 4 p.m., and Fridays, 2 p.m. Demonstrations of the diseases are given by the attending surgeons. Clinical lectures are given from time to time by members of the staff. During the past year 8,281 new out-patients were admitted, involving over 50,000 separate attendances; 250 in-patients were treated. Fee for three months' attendance, 3 guineas; for six months', 5 guineas. The following appointments are open to qualified members of the profession: Three assistant-registrars (vacant in June), tenable for twelve months; twelve clinical assistants, tenable for not less than six months.

The London Throat Hospital (for Diseases of the Throat, Nose, and Ear), Great Portland Street, W.

The hospital contains 16 beds for in-patients. The out-patient department is open daily at 2 p.m., and on Tuesdays and Fridays at 6 p.m. Operations on Mondays, Tuesdays, Wednesdays and Thursdays (usually) at 9.30 a.m. Instruction is given daily at the clinics. A course of practical demonstrations, with instruction in the examination of the throat, nose, and ear, will be given on Wednesdays at 5 p.m., commencing October 2, 1901. Fee for the course, 1 guinea. Fee for one month's attendance, 1 guinea; for three months', 2 guineas; for perpetual studentship, 5 guineas. Clinical assistants are appointed from the students of the hospital for three months, and have the opportunity of treating patients under the supervision of the staff.

Further particulars and information about courses of lectures and demonstrations are usually published prior to their commencement in the advertisement pages of the JOURNAL OF LARYNGOLOGY. The Medical Graduates' College and Polyclinic gives small short practical classes in otology and laryngology, and as the number in a class is limited and the accommodation ample, the teacher is able to see that his students are well grounded in the use of instruments and the methods of examination in a short six weeks' course. These students are then not only ready to profit by the opportunities offered by the numerous throat and ear clinics of the Metropolis, but they are the more welcome as they can at once take a practical share in the clinical work of the teacher.

NOTES.

A SECOND edition, revised and enlarged, of the "International Directory of Laryngologists and Otolologists," compiled by Richard Lake, has been published under the auspices of the JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

The Medical Graduates' College and Polyclinic announces a vacation course of practical classes during September. The course opens on Monday, the 9th, and terminates on Friday, the 27th September. A class on Practical Otology will be held on Mondays at 5 p.m., and on Tuesdays at 9 a.m., commencing Monday, September 9. A class on Practical Laryngology will commence Wednesday, September 11, and will meet on Wednesdays at 5 p.m. at the College, and on Saturdays, at 2.30 p.m., at the Metropolitan Ear, Nose, and Throat Hospital.

In consequence of the great pressure on our space, owing to the lengthy report of the Section of Laryngology and Otology at the annual meeting of the British Medical Association, we are compelled to hold over the publication of many articles and communications of interest.

 BRITISH MEDICAL ASSOCIATION.

Annual Meeting, Cheltenham, July 30, 31, and August 1, 2, 1901.

 SECTION OF LARYNGOLOGY AND OTOTOLOGY.

President: T. MARK HOWELL, F.R.C.S. EDIN.

 A DISCUSSION ON

The Treatment of Nasal Obstruction from Intranasal Causes other than Mucous Polypus

was opened by Mr. F. MARSH (Birmingham), Dr. BROWN KELLY (Glasgow), and Mr. C. A. PARKER (London).

Mr. F. MARSH (Birmingham) said: In opening this discussion, it is advisable, first of all, to define what is meant by the term "nasal obstruction." I would define it as inability to breathe freely and equably at the same time through both nostrils. The degree of obstruction may thus vary between a slight insufficiency of one nostril and complete occlusion of both. That free and equable nasal breathing is essential will, I think, now be generally conceded by all who have experience of ear and throat diseases. I

can only say here that experience has convinced me that it is of the very utmost importance.

In accordance with the wish of the officers of the section, I propose to speak only of obstruction due to abnormal conditions of the turbinal bodies and septum, and to omit such causes as congenital smallness or stenosis of posterior or anterior nares, catarrhal and inflammatory conditions, foreign bodies, rhinoliths, new growths, bulging of inner wall of antrum, collapse of *alæ nasi*, etc.

First, then, with regard to obstruction due to abnormal conditions of the turbinal bodies. This group will include :

A. *Bone Obstruction*.—1. The bony framework of the inferior turbinated being larger than normal from congenital or hypertrophic causes, or projecting too much into the cavity of the nostril. 2. A bulbous condition of the middle turbinated with downward enlargement, entrenching upon, and in severe cases occluding, both the middle and inferior meati.

B. *Soft Tissue Obstruction*.—1. Hypertrophy of mucous and submucous tissues of inferior turbinated, either general or most marked at either extremity. 2. Hypertrophy of similar tissues of middle turbinated. 3. Passive congestion of soft tissues of middle turbinated, often alternating, and often only present in the recumbent posture and varying with vasomotor tonicity.

C. *A Combination of Two or More of these Conditions*.

A. BONE OBSTRUCTION.—1. *Bony Enlargement of the Inferior Turbinate* may be treated by three methods, viz.: Turbinectomy, anterior turbinectomy, crushing outwards of bony framework.

Turbinectomy, by Carmalt Jones's turbinotome, is applicable to those cases in which there is also mucous hypertrophy, most marked posteriorly, obstruction great, and the septum sufficiently straight to admit the passage of the turbinotome. The turbinotome must be sharp, must be carefully placed in position, and must be kept in the right plane during the forward sweep. General anæsthesia with gas or ethyl chloride enables this to be done with greater certainty, and a forefinger in the posterior nares is a valuable adjunct. Hæmorrhage is often free, but is usually controllable by application of, or light packing with gauze dipped in, a solution of extract of adrenal gland. The result of a well-performed turbinectomy in a suitable case is very satisfactory, and reproduction of the turbinal body is sometimes remarkable.

Anterior Turbinectomy is applicable where the enlargement is chiefly anterior, when a deviation or irregularity of the septum renders the passage of a turbinotome difficult, and when an anæsthetic is not advisable or is vetoed by the patient. To Mr. Richard

Lake belongs the chief credit for this operation. It is best performed with a pair of scissors, strong, but light, and curved both at an angle and on the flat. From $\frac{1}{2}$ inch to 1 inch should be excised, and the margin left should be sloped and rounded off carefully. A cold wire snare should be used if there is any difficulty in removing the fragment. In slighter cases Grunwald's conchotome, or one of the many modifications thereof, may be the only instrument needed, small fragments being pinched out until the necessary space has been obtained.

Crushing Outwards of Bony Framework or Shell.—This method is a useful one when the occlusion is mainly due to projection inwards of the bony shell, with little or no mucous hypertrophy. In typical cases the turbinal body forms a right angle with the outer wall of the nostril. It is often bilateral.

The crushing may be done with either a pair of Walsham's straightening forceps or a broad-bladed pair of polypus forceps. A blade is passed into each nostril—resting over the bony projection—and the forceps opened, sufficient force being used to reduce the projection by at least one half. The compressing force can be exercised on the whole or any portion of the bone. The septum must not be used either as a fulcrum or for counter-pressure. The procedure is a quick one, can be easily done under gas or cocaine, there is but little hæmorrhage, and the result is satisfactory.

2. *Bony Enlargements of the Middle Turbinate* must be removed with cold wire screw snare, scissors, or Grunwald's forceps, as may be found most suitable for the individual case.

B. SOFT TISSUE HYPERTROPHY—1. *True Hypertrophy of Mucous and Submucous Tissues.*—If slight and general, the galvano-cautery is as a rule sufficient; several applications may be needed, and the direction and manner of cauterizing must depend on the shape and extent of the hypertrophy. If, however, the hypertrophy is most marked at each or either extremity, the cold or galvano-cautery snare should be used. Removal, when the anterior extremity is the one involved, can often be best and most expeditiously performed with scissors or conchotome.

2. *Hypertrophy of the Mucous Membrane* over the middle turbinate is generally associated with bone hypertrophy, though in cases of asthma I have seen the mucous tissues enormously enlarged—a result rather than a cause. Removal should be effected with either wire snare, scissors or punch forceps.

3. *Passive Congestion of the Soft Tissues* over the inferior turbinate bone is undoubtedly a condition most appropriately treated by the galvano-cautery, a groove in long axis, button-

holes, or isolated points, being made according to the degree and extent of the congestion.

Most of these cases occur in the overworked, the neurasthenic and neurotic—in short, wherever there is a diminution of vasomotor tone—and therefore general tonic treatment, rest, and change are important adjuncts to the local treatment.

C. COMBINATIONS OF BONY AND SOFT TISSUE OBSTRUCTION.—These must be treated by a combination of the above methods, according to the requirements of the case, anterior turbinectomy with the cautery being perhaps the most frequent one.

I come now to obstruction due to abnormal conditions of the septum. These may be :

A. *Bony or Cartilaginous*, comprising: 1. Deviations of bony septum. 2. Deviations of cartilage of septum. 3. Dislocations of cartilage of septum. 4. Exostoses and ecchondroses of septum. 5. Deviations with exostoses or ecchondroses.

B. *Hypertrophy of Mucous and Submucous Tissues over Septum.*

A.—1. *Deviations of the Bony Septum* may be simple or compound, and may vary in degree from an almost imperceptible departure from the straight line to an acute angle. They are generally either ridge-shaped of varying width or “bossed.” The former generally extend the length of the septum in antero-posterior axis; the latter are generally more localized. There is often some bony thickening over the convexity or angle of the deviation, and hypertrophy of the mucous membrane (compensatory) over the inferior turbinated on the side opposite the deviation. The treatment depends upon the degree of the deviation, the size of the nostril, and the condition of the inferior turbinateds. In many of the slighter cases in roomy nostrils treatment of the inferior turbinateds on the lines already indicated will give a sufficient breathing-space. Whenever this is not sufficient, the deviation itself will need treatment. In the ridge-shaped cases especially, when there is bone-thickening, a cutting procedure should be undertaken. Under cocaine and adrenalin chloride solution the ridge should be cut away either with the saw, spoke-shave, or Moure's osteotome. If the ridge is formed by an acute-angle deviation, it is almost certain a communication will be made with the other nostril. This is of no consequence, and in some cases may be an advantage—for instance, those with a collapsed ala nasi from disuse. If the deviation of the septum is localized and rounded, a good result may be obtained with the starring forceps, used in one, two, or more places, according to the area

involved. It can be done under gas or ethyl chloride, and when the bone is thoroughly starred readjustment with Walsham's or any flat-bladed forceps, or the finger, is easily accomplished. The difficult cases are those where the whole of the septum is deviated, sinuous from before backward, and concavo-convex from above downwards, both nostrils being obstructed and undeveloped from disuse. Chloroform or ether is necessary, and Asch's or one of the various modifications of his operation must be performed. The area of deviation must be cut through or fractured in such directions that replacement can be made with straightening forceps and the new position retained without *pressure* splints. A *supporting* splint in one or both nostrils is often desirable, and I have found lengths of drainage-tubing of various sizes, or a splint cut out of a sheet of rubber, effective for this purpose. They are easily sterilized, cleanly, and better tolerated than most other material. I have long ago discarded the vulcanite and rubber plugs, my results with them being most disappointing.

The splints may as a rule be taken out at the end of the first week, but the patient should be kept under close observation for some weeks. Any tendency to relapse calls for the reinsertion of the support. Care must be taken to prevent adhesions, and if there is any fear of this, a piece of gutta-percha tissue should be kept between the opposing surfaces until healing is accomplished.

2. *Deviations of the Cartilage of the Septum* occur generally as a convex bulging to one side. Petersen's and Hajek's methods are efficient, but somewhat tedious and complicated. I have found it sufficient to thoroughly star the cartilage, replace it in position, and keep it there with a supporting splint.

3. *Dislocation of the Cartilage of the Septum* and eversions of the median edge of the lateral cartilages are best treated by excision of the projection, the mucous membrane being first incised and reflected.

4. *Exostoses and Eechondroses of the Septum* are often found in association, the superficial layer being composed of cartilage, the deeper parts of bone. The younger the person, the greater the proportion of cartilage. They may occur at any part of the septum, but their favourite sites are the lines of juncture of the bones and cartilage forming the septum. In shape they vary from a small spine or spur to an elongated ridge or crest. The method of removal will depend chiefly upon the size, shape, and density of the projection. In the case of small spines, the galvano-cautery will perhaps most easily achieve the desired result, being bloodless, painless under cocaine, and not alarming to the timid and nervous;

or one of the many cutting hooks or ring-knives may be used. I, however, generally employ a blunt-pointed bistoury or strong blunt tenotome both for these and all those of moderate size composed chiefly of cartilage. The larger and denser ones must be removed with a spokeshave, osteotome of Moure, or a saw. If the projection is so shaped that it can be engaged posteriorly with a spokeshave or osteotome, they should be used in preference to the saw; the process is more rapid and less painful, the line of incision is clean, and the fragment is easily removed. I have not yet had occasion to adopt Moure's suggestion to make a groove for the reception of the blade with the galvano-cautery when there is no engaging projection. The saw—Bosworth's or Woakes'—according to the length of the exostosis, should be used for cases unsuitable for the above method. When practicable, the sawing should be done from below upwards, the line of the septum should be maintained as far as possible, and it is best to err on the side of cutting too much than too little. Scissors or the wire snare may sometimes be needed to complete the severance of the fragment. Of treatment by electric trephines, burrs and saws, and electrolysis, I have no experience.

5. *Combinations of Exostoses and Ecchondroses with Deviations*, the most common of all, should be treated by a combination of cutting away and straightening—if free removal of the thickened portion is not sufficient—according to the principles enumerated above. In all these cutting procedures hæmorrhage must be taken into account. It can usually be restrained during the operation by the application of adrenalin solution, and afterwards by a strip of gauze soaked in this solution and introduced into the nostril. This should be removed as soon as loose—about forty-eight hours afterwards—and the nostrils kept clean and aseptic by the frequent use of an alkaline antiseptic wash or spray. It is most desirable that the patient be kept under observation until healing is complete—often a matter of some weeks.

B.—Hypertrophy of the mucous tissues over the septum is rare, and seldom sufficient of itself to cause any great degree of obstruction. I have seen a few cases where it was very marked, but a satisfactory result was obtained by the use of the galvano-cautery.

Lastly I wish to speak of adhesions between the septum and turbinal bodies the result of previous ulceration, traumatism from the rough use of forceps in removal of polypi, and chemical agents.

One of the worst cases I have seen was from the treatment of mucous polypi by rubbing with solid nitrate of silver. The septum

and inferior turbinated were closely welded together, and it was infinitely more difficult to overcome this than to remove the polypi. The adhesions should not only be freely divided with scissors, but, if practicable, some of the turbinal tissue should be excised. Trichloracetic acid should then be applied to the raw surfaces, and a piece of gutta-percha tissue kept between them until healing has taken place.

Owing to the extent of the subject and the limited time allowed, I have had to deal briefly with many important points and to omit much detail. I have given my own personal experience, and trust that, although I have enunciated but little that is new, I have raised questions sufficient to stimulate and promote some discussion.

Dr. BROWN KELLY (Glasgow), in his opening address, said :

The part of our subject of discussion to which I desire to direct your attention is the treatment of swelling and hypertrophy of the inferior turbinate.

It might not be amiss to preface my remarks by a brief consideration of how we should act when turbinal enlargements are associated with certain other morbid conditions. I would refer first to adenoids. In children there is no doubt that the treatment of the naso-pharynx should take precedence of any intranasal measures that may at first seem necessary, and that the latter should be delayed until the effects of the adenoid operation have been observed. In adults the question of procedure is more difficult. Thus, we not infrequently meet with a case presenting the following symptoms: susceptibility to colds, post-nasal catarrh, and tendency to buccal respiration. On examining the patient, we find little or no evidence of intranasal disease, and in the naso-pharynx only a small mass of adenoids which just hides the choanal arches. Are we to attribute the symptoms to intermittent swelling of the inferior turbinates, to the adenoids themselves, or to the influence which some writers suggest is exercised by the adenoids in causing passive congestion of the turbinates? After observing the result of treatment in a number of such cases, I have come to the conclusion that a small mass of adenoids in an adult plays an insignificant part, if any, in producing the symptoms mentioned and in maintaining turbinal engorgement. Attention to the intranasal affection will therefore be of primary importance in these cases.

The association of a spine or deviation of the septum with turbinal enlargement, especially in a patient in whom only mild measures are permissible, may lead one to speculate as to whether

treatment of the turbinate alone cannot be made to suffice. Until comparatively lately there has been a tendency to avoid interference with the septum, owing to the severity of the measures necessary and the often unsatisfactory results, and to aim at obtaining the desired patency rather by sacrificing the turbinate to a greater or less degree. On the other hand, some rhinologists, believing that a septal outgrowth excites hypertrophy in the turbinate opposite, a view which is not supported, I think, by clinical evidence, have regarded the treatment of the septum as essential. Between these two extremes a middle course is to be steered. In general terms, septal and turbinal affections should be treated as far as possible according to their respective requirements.

The futility of treating a swollen turbinate in the presence of an accessory cavity suppuration need only be mentioned.

It is often a matter of considerable difficulty in treating pathological states of the inferior turbinate to determine how much should be done. This is particularly so when an intermittent congestive condition is present which gives rise to pharyngeal symptoms only, and is unaccompanied—at least, so far as the patient has noticed—by nasal obstruction. Rhinoscopy in such cases may yield a false impression as to the patency of the nasal fossæ, if it be not borne in mind that the psychical disturbance—excitement, mental tension, or whatever it may be—during the examination exercises a peculiar influence on the inferior turbinates, whereby they become collapsed. Under these circumstances, although we may feel fairly sure that the symptoms are of nasal origin—or, rather, that they are not of pharyngeal origin—it is desirable before beginning operative measures to obtain evidence of the suspected stenosis. For this purpose a drug having local vasodilator properties would be invaluable. In the meantime we must trust to the patient, and ask him to test for a few days the patency of each nasal passage from time to time, especially while lying in bed, for then the turbinates, more particularly that on the side upon which he lies, shows the greatest tendency to engorgement. Sometimes we may chance to see the abnormal swelling if an examination be made at the end of the visit, or at a second visit, when the patient has become more accustomed to his surroundings.

Exceptionally we meet with persons whose statements as to the presence or degree of nasal obstruction are exaggerated or unreliable. Thus, sufferers from cardiac disease may attribute their dyspnoea to a supposed nasal affection, and hysterical, neurasthenic and asthmatic individuals may complain loudly of insignificant obstruction. In these cases it is often extremely difficult to decide

as to whether the local condition has played a part in producing and maintaining the dyscrasia, or is merely an expression of the general loss of tone and heightened reflex irritability from which the patient temporarily suffers. In regard to asthma, I have seen so much benefit follow comparatively trivial intranasal procedures that I feel encouraged to operate when the indications are slighter than would warrant similar measures in non-asthmatics. Upon considerations such as these should be based not only the diagnosis, but also the estimate of the amount of treatment to be carried out at each sitting.

Various medicaments, chiefly astringents, vaso-constrictors, antiseptics, and alteratives, have been recommended for the reduction of turbinal engorgements. The benefits derivable from these is limited and temporary, and is best seen in cases in which the nasal affection is secondary to a constitutional disturbance.

For the more obstinate cases of swelling, as also for moderate degrees of hypertrophy of the inferior turbinate, recourse must be had to other measures. Amongst those that have been advocated are: Bougies (Wagner), tents (Solis-Cohen), elastic balloons distended with water (Dionisio), injection into the enlarged turbinal of ergot (De Blois), carbonic acid (Henderson), or zinc chloride (Viollet), scarification, electrolysis, massage, compressed air (Massei), and hot air (Lermoyez and Mahu).

Without denying a possible value to these methods in some instances, experience has proved that cauterization yields with most ease the best results in the largest number of cases. The agents that have been found most suitable for cauterization of the nasal mucous membrane are the galvano-cautery and chromic acid; trichloroacetic acid, for which so many advantages have been claimed, is inferior to chromic acid excepting in non-toxicity.

The galvano-cautery and chromic acid may be used interchangeably, although as a rule one or other is to be preferred in each case. Thus, for turgescence, slight hypertrophies, and in sensitive patients, the cautery is probably the better agent; when catarrh is a prominent feature, chromic acid is more efficient (McBride); and when the hypertrophy is considerable, both cautery and acid may be advantageously employed at the same sitting.

Little need be said as to the manner of carrying out what to most of us is an everyday procedure. It is commonly recommended to make three parallel furrows along the inner surface of the inferior turbinate. This, I believe, is rarely necessary, and I would deprecate the great destruction of glands thus caused. If the cauterizing agent be applied along the lower edge of the turbinal

where the glands are scantier, the desired reduction will be effected in the majority of cases, and with greater impunity. The depth to which the cautery-point is to be plunged, and the thoroughness with which the chromic acid is to be rubbed in, will depend upon the amount of enlargement present. No after-treatment is called for beyond the insufflation of an antiseptic powder and confinement indoors for the remainder of the day. An alkaline wash may be used afterwards if the discharge becomes abundant or tends to form crusts.

A second cauterization should not be made until the wound caused by the first has healed and the cicatrix contracted. This requires three weeks or longer, the duration of the process depending largely on the patient's constitution.

There is considerable diversity of opinion as to the frequency with which cauterization should be repeated. In the majority of cases two applications to each side should suffice, and it is very exceptional that more than three are needed. The patients in whom I have had greatest difficulty in effecting the necessary reduction were boys of from eight to twelve years of age, in several of whom asthma was a prominent symptom; the intranasal appearances in these cases were in no way unusual.

One should be chary of treating medical men who are attending cases of influenza. In several instances I have seen a severe attack of this disease follow cauterization in such a manner as to suggest a relation.

When the inferior turbinate presents large hypertrophic masses, their direct removal is preferable to slow destruction by cauterization. Of the instruments recommended for the treatment of this condition, the galvano-cautery snare is the best. The cautery snare is usually applicable to hypertrophies of the anterior end—with or without the aid of a transfixion needle—to those along the lower edge of the inferior turbinate, and to the masses occasionally found on the outer side of this body which are brought into view with the probe. The posterior end, on the other hand, cannot always be encircled, owing to the narrowness of the nasal chamber and the thickness of the ligature tube. In these cases the cold snare, which is more easily manipulated, should be tried.

To catch the hypertrophied posterior end of an inferior turbinate is sometimes a matter of considerable difficulty. It should be carried out, when possible, as it usually is, under anterior rhinoscopy; failing this, posterior rhinoscopy may be employed; and if the latter also be impracticable, attempts should be made to hook the mass in the loop of wire, the feeling of resistance being our

guide. The introduction of a forefinger into the naso-pharynx, to place the loop in position, is unnecessary and extremely disagreeable to the patient.

At one time I believed—what is still current in many text-books—that it was necessary in this operation to employ an ecraseur and to constrict the mass very slowly, in order to avoid excessive bleeding. Experience showed, however, that this was by no means a safeguard. Subsequently I abandoned the ecraseur in favour of an ordinary snare, with which I am in the habit of severing the hypertrophy in two or three minutes, instead of an hour or more as previously; I have noted but slight, if any, increase in the hæmorrhage since adopting this plan. I would repeat, however, that the galvano-cautery snare, when applicable, should be used in these cases. The operation with the cold snare is followed, as a rule, in half an hour to an hour, by bleeding. The patient should be warned of this, and instructed as to the measures to be adopted in the event of the hæmorrhage becoming profuse (*e.g.*, pediluvia, sucking ice, and recumbent posture). I have performed this small operation over 200 times, and although I apply neither styptic nor packing to the bleeding surface afterwards, I have had no alarming hæmorrhage, nor one requiring my personal attention.

In dealing with these posterior hypertrophies, it is well to keep the following facts in view: (1) That no amount of treatment applied to the anterior two-thirds of the turbinal will appreciably lessen the size of its posterior third. (2) That a removal of a hypertrophied posterior end is not infrequently followed by subsidence of the swelling of the rest of the turbinate. The snaring of the posterior end should therefore be undertaken at an early stage in the treatment of these cases. (3) That, after-removal of what at the operation appeared to be the entire posterior end, considerable enlargement may still be present when healing has taken place. This is probably due to swelling of the parts immediately anterior to the line of section. It is therefore advisable when removing a posterior end to include a tapering portion of the soft tissues along the lower border of the posterior third of the turbinal. (4) That after removing the posterior end on one side, that on the other, which previously appeared normal, may become enlarged.

Hypertrophied parts of the inferior turbinate may also be removed by scissors, cutting forceps, or the spokeshave. These instruments, however, are inferior to the snare in adaptability, precision, or hæmostatic action.

The spokeshave, or ring-knife, as it was originally termed, was

introduced for the removal of the hypertrophied posterior end of the inferior turbinate. This instrument might have retained an irreproachable place in our armamentarium if its use had been restricted to that for which it was designed. Unfortunately, it found a wider application, and was modified in order to remove not only the hypertrophied mucous membrane, but the whole or greater part of the turbinated body. The operation of turbinotomy has not redounded to the credit of British rhinology, and at present I would merely have disclaimed any partiality for it had the suggestion not been made that the subject should form part of our discussion. The following may be mentioned as some of the objections to turbinotomy: (1) That, in aiming at the improvement of certain functions, it removes the organs chiefly concerned in the performance of these functions. (2) That it accomplishes no more than can be attained by milder measures. And, I would ask, which of us would submit to turbinotomy in preference to treatment by snaring or cauterization? (3) That there is the liability afterwards to dryness of the mucous membrane of the upper air-passages. I am told on good authority that even ozæna may be a sequela, but of this I have no personal knowledge.

I might here remark that any operation whereby the nasal fossæ are made unduly free may be followed by abnormal dryness of the parts below. There are few conditions of the upper respiratory tract in which the rhinologist feels so helpless as that of wide nasal chambers with pharyngitis sicca and tendency to laryngitis. Caution therefore is always called for, but especially, I think, in dealing with advanced cases of polypoid rhinitis, in which the obstruction is due to inert hypertrophic masses, the tissues of which appear to have lost their characteristic expansile and contractile properties.

Is complete turbinotomy ever indicated? The only cases in which I can conceive it might be are those of great deviation of the septum as a whole in a very narrow nose; it might then be beneficial to remove the rudimentary inferior turbinate from the narrow side. The only occasion on which I attempted a complete turbinotomy was when operating in nasal fossæ such as described. The patient presented a most unusual group of symptoms, namely, occlusion of the narrow side by swelling of the inferior turbinate was accompanied by severe pain in the corresponding eyeball and marked contraction of the pupil, whereas, when the narrow nasal fossa was patent, the pain in the eye was absent and the pupils were equal in size.

Turbinotomy probably owes the support it receives chiefly to

two reasons: (1) It effects the removal of the enlarged posterior end of the inferior turbinate, and secures the benefit resulting therefrom. (2) As stated by one of its advocates, it demands only ordinary dexterity, while the snaring of a posterior end, on the authority of the foremost writer on rhinological technique, is one of the most delicate operations in the nose.

Time does not permit of my doing more than mention the importance of general treatment. Continued exposure to a vitiated atmosphere, an error in diet, or the neglect of a diathesis or systemic disease, may go far to nullify local treatment, however well carried out.

Mr. C. A. PARKER (London) contributed the following paper to the opening of the discussion:

The methods of operating for the relief of nasal obstruction have been very fully dealt with by various authorities during the last few years, and therefore I will not touch on this part of the subject, but will consider briefly some of the indications for operative interference.

I have recently made some observations on the directions of the air-currents in the nose, an account of which has been lately published in the JOURNAL OF LARYNGOLOGY, and therefore I shall only allude to them in so far as they bear on the subject of this discussion.

The method I employed for ascertaining the direction of the inspiratory air-current was to blow lycopodium into the air the patient was breathing, afterwards noting the distribution of the powder in the nose; and for expiration I noted the course which tobacco-smoke took on being exhaled through the nostrils.

In normal nares the distribution of the powder on the mucous membrane showed without any doubt whatever that the current of inspired air passes upwards and backwards through the middle and superior meatus, entirely missing the inferior meatus; that it then sweeps over the vault of the naso-pharynx and passes down the posterior wall of the pharynx to about the centre of its oral portion, from whence it takes a straight course into the arytenoids.

In expiration the air, as shown by the smoke, takes a lower course, passing chiefly through the inferior meatus.

Having determined the air-way in the normal nose, I next examined by the same methods cases in which various abnormalities existed, by doing which many points of interest and usefulness were suggested.

The chief points to be kept in view in considering a case of

nasal obstruction, and in determining what, if any, treatment should be adopted, are :

1. Difficulties of inspiration.
2. Difficulties of expiration.
3. The efficiency of the drainage of the nose.
4. The possibility of the abnormality being a source of chronic inflammation.

1. DIFFICULTIES OF INSPIRATION.—In considering this question, I wish first to point out that the use of lycopodium may be applied for practical purposes. In normal nares the powder is deposited on the septum in a broad band curving upwards and backwards through the middle and superior fossæ, and it is also seen on the anterior end and under surface of the middle turbinate, whereas in obstructed nares the lycopodium is diverted from its usual course, and the hypertrophy, spur, or deviation causing the obstruction is thickly coated with powder. It is thus possible to see, and to limit the operation to, the exact portions which require removal in order to establish free inspiration. This may be of great importance, for, seeing that the inspired air does not come into direct contact with the inferior turbinate, it is possible that the mucous membrane covering the structures in the middle and upper passages has more to do with warming and moistening the air than is generally supposed. Speaking generally, it may be said that any abnormality situated or projecting in front of a line drawn from the floor of the nose, just within the vestibule, to the anterior end of the middle turbinate will cause difficulty of inspiration, and should therefore be removed.

The principal abnormalities, excluding tumours and specific diseases, which may cause inspiratory obstruction, may be tabulated for the purposes of description as follows.

A. Alterations in the inferior meatus :

- (a) Dislocations and thickenings of the anterior end of the septal cartilage.
- (b) Spurs of the septum.
- (c) Tumefaction and hypertrophy of the inferior turbinate.

B. Alterations in the middle meatus :

- (a) Simple deviations of the septum.
- (b) Deviations with spurs.
- (c) Enlargements of the middle turbinate.

C. Alterations in the post-nasal space :

- (a) Adenoid hypertrophy.
- (b) New growths.

These abnormalities will be mentioned more in detail under their respective headings:

A. *Alterations in the Inferior Meatus:*

(a) *Of the Anterior End of the Septal Cartilage.*—Dislocations and thickening of this part of the septum are a most fruitful source of obstructed inspiration, and obviously require operative treatment. Whilst operating the normal air-course should be borne in mind, and sufficient of the cartilage removed to give a free air-way from the nostril to the middle meatus. To effect this it is necessary to take away not only the lower protruding part, but also any thickening which may exist higher up towards the middle meatus.

(b) *Spurs of the Septum.*—When situated in the lower meatus, spurs seldom give rise to any inspiratory difficulty. The majority of them are situated low down and far back, and do not project in front of the imaginary line already defined, and on applying the lycopodium test the powder is seen to have taken its usual upward course, leaving the spur untouched. Occasionally, however, a spur may project in front of the line and cause obstruction, in which case the lycopodium will be diverted from its usual course, and the projecting portion of the spur will be thickly coated with powder. Under these circumstances operation is clearly indicated, and sufficient of its anterior end must be removed to restore a free passage from the vestibule to the middle meatus.

(c) *Enlargements of the Inferior Turbinate.*—The normal path of inspired air being through the middle and upper passages, it follows that the inferior turbinate may be considerably enlarged without in any way interfering with inspiration—a fact constantly observed in practice. Sometimes, however, the anterior end is enlarged in a forward and inward direction, and crosses the line drawn from just within the vestibule to the anterior end of the middle turbinate, in which case it will cause obstruction, and operative treatment is indicated. In doubtful cases the use of lycopodium is helpful, for if the anterior end is covered with powder it is probably a source of obstruction, as normally none should be seen there.

As regards the posterior end, we shall see presently that its enlargement is more likely to cause difficulty of expiration, but excessive enlargement may also obstruct inspiration. In either case operation is indicated. As regards complete turbinectomy, I do not consider it ever necessary for the relief of inspiratory difficulties.

B. *Alterations in the Middle Meatus:*

(a) *Deviations of the Septum.*—These are far more productive of

inspiratory obstruction than spurs, and, unfortunately, are harder to deal with. By the use of lycopodium it is seen that even slight deviations may considerably interfere with the air-way, and especially those which involve the cartilaginous septum, and in which the greatest convexity of the bulge is situated towards the front part of the middle meatus. These slight cases cause considerable difficulty to the patient, and marked cases may be productive of complete stenosis; in either case, therefore, operation is indicated. The best method of dealing with the slight cases is a matter of some doubt, for the departure from normal is often so small that one hesitates to perform an extensive operation. In several cases I have found the free application of the cautery enough, and in others I have obtained sufficient room by taking off the smallest shaving of the mucous membrane and cartilage with a knife. In marked cases I prefer the method described by Dr. Lack in Watson Cheyne's new volume.

(b) *Deviations with Spurs of the Septum.*—These deformities are also productive of obstruction. There are two varieties to be considered: firstly, a simple spur lying in the lower meatus, with a deviation obstructing the middle meatus; and, secondly, a deviation the convexity of which is thickened into a spur. In the former variety it is the deviation which causes the obstruction and requires treatment; the spur, as a rule, is below the air-current, and may be left alone. The use of lycopodium will determine whether the spur is adding to the obstruction, and, if so, to what extent it should be removed. In the second variety operation is usually indicated, and it is generally possible to remove sufficient of the thickened septum to establish a free air-way without making a perforation. If, however, in the course of operation the saw penetrates the opposite side to any extent, removal should be abandoned, and the operation continued as for simple deviation.

(c) *Enlargements of the Middle Turbinate.*—Seeing that in normal nares the air traverses the superior meatus, enlargements of the middle turbinate, when sufficient to cause obstruction between the middle and upper passages, seem to assume more importance than is generally attached to them. Enlargements are met with in three distinct classes of cases: firstly, in rhinitis sicca; secondly, accompanying muco-purulent rhinitis; and, thirdly, in cases of commencing or established polypus. In dry rhinitis the enlargement may be caused by foreign particles in the air impinging on a dry mucous membrane and producing chronic inflammatory thickening; but I would suggest that the enlargement may also be the cause of the dry rhinitis, for, the superior meatus being blocked,

all the air must pass through the middle meatus, and thus the warming and moistening powers of its mucous membrane may be overtaxed. I would therefore further suggest the advisability in these cases of restoring the air-way from the middle to the superior meatus by amputating the anterior end of the middle turbinate.

In muco-purulent rhinitis, accompanied by enlargement of the middle turbinate, there is sometimes a distinct set of symptoms: the discharge is very profuse and sticky, and is voided with great difficulty; the voice has a distinct nasal timbre, and the patient complains of inability to breathe through the nose. This last symptom is more subjective than real, for, on being told to do so, he can close the mouth and breathe fairly freely through the nostrils. On examination, the inferior meatus is often found to be unusually roomy, but the middle turbinate is much enlarged and surrounded by thick muco-purulent discharge. This set of symptoms I consider to be an indication for removing the anterior end of the middle turbinate. The nasal voice and the difficulty of nasal inspiration will be at once relieved, and with appropriate treatment the discharge will soon cease.

The third variety of enlargement of the middle turbinate does not come within the limits of this discussion.

C. Alterations in the Post-nasal Space :

When it is remembered that normally the air-current sweeps over the roof of the naso-pharynx, it is readily seen that any hypertrophy or growth springing from the roof will be a source of obstruction. The fact that quite small pads of adenoids, even in adults, cause obstruction is thus readily explained, and the importance of their removal is obvious.

2. DIFFICULTIES OF EXPIRATION.—From the results of the smoke test and from the patient's subjective sensations it is evident that it requires far greater abnormalities to interfere with expiration than it does to impede inspiration. In expiration the air-stream, though normally passing through the inferior meatus, seems easily diverted into the middle meatus when the former is obstructed; in inspiration, on the other hand, even slight abnormalities, which divert the air-stream, cause considerable discomfort. This difference may perhaps be accounted for by the fact that inspiration is due to muscular action, whereas expiration is the result of elastic recoil. Anyhow, there may be great obstruction of the inferior meatus without any difficulty of expiration, but if there is obstruction of the middle meatus *as well*, then expiratory obstruction will be complained of. This I have proved by plugging the inferior

meatus with cotton-wool and watching the course of exhaled smoke. The smoke finds its way through the middle meatus, and no sensation of obstruction is experienced; but if in addition the smallest piece of wool is inserted into the middle meatus, both inspiration and expiration at once become difficult. Hence, it is evident that operative interference in the inferior meatus is seldom indicated for the relief of expiratory obstruction. There is, however, one abnormal condition which often obstructs expiration whilst leaving inspiration comparatively free, namely, enlargement of the posterior end of the inferior turbinate. If this enlargement is at all considerable, it will block the inferior meatus and partially obstruct the middle, thus producing a condition which would naturally be expected to cause such symptoms. When, therefore, the difficulty of expiration is in excess of that of inspiration, enlargement of the posterior ends of the inferior turbinates should be suspected.

3. THE EFFICIENCY OF THE DRAINAGE OF THE NOSE. — The efficient drainage of the nose is as essential to the health of the nasal cavities as is the free air-way. It is therefore important to inquire in what way intranasal abnormalities may interfere with this important process. From careful observations, it seems probable that the secretions gravitate to the inferior meatus, from whence they are expelled in an unobstructed passage by the expiratory air-stream on blowing the nose. If the inferior meatus is obstructed in any part of its course, the expiratory air-stream is, as has already been pointed out, diverted into the middle passage, at the same time losing much of its force, and hence the secretions collect in the lower passage, causing irritation, chronic inflammation and much discomfort to the patient. Again, difficulty of both inspiration and expiration is often met with in cases in which the intranasal abnormalities are limited to the inferior meatus. On examining such cases carefully, the middle meatus is found to be full of secretions—often muco-purulent and sticky—which are voided with great difficulty, and which consequently collect and cause obstruction. The abnormalities in the lower meatus are found to be very marked, and to be such as to prevent the discharges gravitating from the middle to the inferior meatus.

Operation is therefore indicated in those cases of obstructed inferior meatus in which secretions are found collecting in either the inferior or middle fossa. The conditions which may require operation are enlargements of the anterior end of the inferior turbinate, or of its posterior end, true hypertrophic outgrowths of the inferior turbinate, and some few spurs of the septum. It is never necessary to remove the whole of the inferior turbinate, as

the anatomical widening of the middle part of the inferior fossa always allows of sufficient room for both expiration and drainage.

It is seen, therefore, that as regards the respiratory function of the inferior meatus operative measures are seldom necessary ; but for the purposes of drainage it is often advisable to establish a freer passage.

4. The last point for consideration is THE POSSIBILITY OF NASAL OBSTRUCTION BEING A SOURCE OF CHRONIC INFLAMMATION. It is more or less an accepted doctrine that spurs, for example, may by their mere presence give rise to chronic rhinitis, and, secondarily, to chronic otitis, pharyngitis, laryngitis or bronchitis. From closely observing these cases, I am of opinion that spurs never cause chronic rhinitis and its sequelæ unless they interfere either with respiration or with the efficient drainage of the nose. Of all intranasal abnormalities, I should say that spurs projecting into the inferior meatus are the most innocent. To bear this out, one only has to remember the vast number of spurs which cause no symptoms whatever. Apart from the question of respiration and drainage, the only indications for their removal are hay fever and hay asthma. In these troubles, owing to the sudden engorgement of the inferior turbinates, it is possible that spurs may still further increase the obstruction and add to the irritation. The same troubles may also be occasionally an indication for complete turbinectomy.

In conclusion, I would suggest the following points more especially for discussion :

1. That even slight abnormalities occurring in the middle meatus are of more importance than great abnormalities in the inferior meatus.

2. That abnormalities causing obstruction between the middle and superior meatus are productive of harm, and may require treatment in order to restore the air-way.

3. That, in view of the fact that the inspired air does not pass directly over the inferior turbinate, it is probable that the mucous membrane covering the structures of the middle and upper passages shares the important function of warming and moistening the inspired air, and, consequently,

4. That operative interference should be strictly limited, no more of the parts being removed than is absolutely necessary to restore the natural air-way.

5. That the interior meatus is the natural channel for the drainage of the nose, and that removal of obstructing abnormalities is often necessary to render it efficient for this purpose.

Mr. MAYO COLLIER (London) said he would venture to remind them there had been an omission of a form of obstruction he would call "latent obstruction." Mr. Marsh in his definition of nasal obstruction fell rather short of a complete definition. He said nasal obstruction was a condition where nasal respiration had to be associated with oral respiration. This definition should be amplified by the words "and at all times." The nose should be efficient for nasal respiration at all times, day and night.

He referred to a class of cases entirely omitted by the opener of this debate—those cases that are free during the day when up and about, but obstructed at night, when the body is in the horizontal position and the head is on the pillow. The nasal cavities are lined with a membrane of remarkable constitution; it simulates erectile tissue and is affected by any general debilitating cause. This tissue becomes in some cases quite atonic, and fills up whenever the body is in a horizontal position.

These cases require not only general treatment, but the application of the galvano-cautery to several points of the tissue, to pin down the covering and lessen the tendency to obstruction.

Dr. WATSON WILLIAMS (Bristol) said it was most important to consider each case on its own merits. The symptoms were by no means commensurate with the degree of obstruction, for while in one patient more or less obstruction was unattended with symptoms, in another patient the same amount of obstruction caused very pronounced discomfort, and not seldom very great nervous depression.

He desired to draw attention to the large group of cases suffering from nasal obstruction, due to turgescence or hypertrophy of the turbinal bodies, associated with and caused by gout, rheumatism, and various gastro-hepatic disorders, and other systemic affections with vascular atony. In these cases general therapeutic measures, such as Turkish baths, a visit to some spa, British or Continental, or a course of nerve tonics, etc., would produce a very satisfactory result without resort to local operative procedures.

Many cases for which operative treatment was necessary could be completely relieved by very slight measures, such as inferior anterior turbinectomy. In others more radical measures, such as Asch's operation, or one of many other septal operations, were called for. In a few cases—very few indeed—he thought complete inferior turbinectomy was desirable, but in his experience these were very exceptional.

Dr. STCLAIR THOMSON (London) said the openers of the debate were to be congratulated on their extremely judicial and wisely

conservative remarks. The papers marked real progress in rhinology, and covered the ground so completely that it was only possible for him to take up a few of the suggestions which had been thrown out. As regards the "latent" or "intermittent congestive" form which had been referred to, he remarked that in some cases he had found it to be part of a tendency to emphysema and asthma, hepatic trouble, and reflex, due to more distant points of irritation—such as pelvic mischief in females.

He supported Dr. Brown Kelly in the view that complete removal of the inferior turbinal is very rarely required, whereas they must all be agreed that when there is true mulberry hypertrophy of its posterior extremity it should always be treated. The enlargement was pathological, and always the cause of trouble. It was at one of these annual gatherings that Dr. Wyatt Wingrave had drawn particular attention to this, and they were indebted to him for popularizing it with the profession in this country.

He thought Mr. Parker's remarks on the importance of what he termed "nasal drainage" deserved their consideration. His views might explain cases of one-sided muco-purulent rhinitis which they could not trace to any sinus.

The avoidance, if possible, of complications of influenza was an important point. He had seen most alarming symptoms, both in his own practice and in that of colleagues, occurring after slight operations carefully performed, which were undoubtedly due to influenza infection.

Finally, he could not agree that a patient was always better without a useless turbinal. They must avoid overdoing the removal of nasal obstruction or carrying out more than sufficient treatment to relieve symptoms. It would be better for a patient to have some slight nasal obstruction, and be forced to sleep with his mouth open, than to have completely patent nasal fossæ at the expense of the discomfort and distress of pharyngitis sicca.

Dr. MILLIGAN (Manchester) said he was one of those who strongly deprecated the somewhat reckless operative methods which had been in use for some years past in nasal surgery, and thought that more good might be obtained by a careful study of the particular requirements of each individual case and by designing methods of treatment as circumstances arose. For that reason he welcomed the communication which Mr. Parker had made, and thought that if Mr. Parker's observations were substantiated a scientific and rational basis could be founded which would materially assist in deciding as to what operative interference should be undertaken. With regard to the vexed question of the

removal of the inferior turbinate bodies, his own experience had been that such an operation was seldom required. In the great majority of cases a much more scientific method of obtaining the result desired was by removal of the anterior third or the posterior extremity of the enlarged inferior turbinate body. He did not wish to convey the impression, however, that a total turbinectomy was never called for. All he wished to emphasize was that it was but seldom required. In treating hypertrophies of the mucous membrane covering the inferior turbinate body, he had obtained considerable success by submucous incisions and the application of chromic acid fused upon the end of a probe and passed along the line of incision under the mucous membrane. By doing so a good, strong, and firm cicatrix was produced, which effectually bound down the redundant mucosa. In many cases he thought that minor degrees of nasal obstruction were frequently dependent upon general constitutional conditions, and that inquiry into the state of the patient's general health and treatment directed to any irregularity—such as hepatic congestion, ovarian irritation, etc.—would in many cases relieve the associated intranasal trouble. He was firmly of opinion that it was of very little use to lay down any set of rules as regards the treatment of nasal obstruction, either chronic or intermittent, as he was fully convinced that it was essential for every case to be studied separately and judged upon its own merits.

Dr. PERMEWAN (Liverpool) wished to add his tribute to the value and scientific character of Mr. Parker's contributions to the discussion. He ventured to think they marked an era in which accurate observation would take the place of more or less prejudiced contention on one side or the other. As regards the question of inferior turbinectomy, he thought that the old controversy as to the propriety of complete turbinectomy might well be laid to rest. Obstruction must be relieved wherever it occurred; and just as much of the inferior turbinate, or of any other structure, must be removed as the nature of the case demanded. There should be, therefore, no dogmatic statement laid down as to the unjustifiability of complete removal. Dr. Watson Williams' remarks on the relation of general diseases to nasal obstruction were of much interest, and there was no doubt some cases of nasal obstruction required, and would be cured by, general medical measures.

Dr. SCANES SPICER recognised the great value of Mr. Parker's observations, and thought they helped to explain why the genu and front part of the middle turbinated body and the adjacent anterior ethmoidal cells were the seat of such frequent, early, and

severe changes of an inflammatory character and polypoid degeneration, because, on Mr. Parker's hypothesis, here it was that any sources of irritation in the inspired air (dust, germs, etc.) were chiefly and perpetually deposited. He desired to support the continued use of the term "nasal insufficiency" to denote the lesser degrees of nasal obstruction, and as applicable to those cases for which others had suggested the terms "latent obstruction," "incompetency," and "embarrassment." He ventured to submit another term, and that was "nasal inadequacy," for these cases, and he considered that discussion on these terms was likely to be of great utility, for it arrested the attention of the unprejudiced thinker as to the subjacent facts. The profession did not yet fully realize the frequency and importance of these lesser degrees, hence the expediency of having them hall-marked by the most accurate and distinctive name that could be invented.

He disclaimed all sympathy with indiscriminate turbinectomy, but had from its first suggestion sustained the position that turbinectomy had a legitimate place in nasal surgery. He advocated the treatment of every case of nasal obstruction on its merits, giving due consideration to the degree, the severity of symptoms and signs, and the circumstances of the patient as to time and means at disposal. For example, patients coming from remote provinces and colonies, from India and Australia, were unable to remain indefinitely in a city under treatment while minor measures were being tentatively applied over months or years, in order to comply with theoretical views as to the possibility of doing without turbinectomy, entire or partial. In his opinion, the patient should certainly have the option of such a clearance by operation as would be speedy and effectual and relatively economical, should the rhinologist of experience and judgment deem it necessary, even at the sacrifice of more or less of the inferior turbinated body. Complete turbinectomy was also justifiable in certain cases of imperfect or arrested development of the nasal passages in which it was at once evident to the expert that nothing short of that would be beneficial or sufficient.

Another group of cases were certain complex and extreme deflections of the septum, in which treatment of the latter involved difficult and repeated operations, entailing time and expense that the patient could not undertake. These were all practical points in connection with the "merits of the case" which no practical man could disregard, even assuming that some other course might theoretically be better, if the circumstances were different. As to the disadvantages of turbinectomy, they were in his experience

insignificant. Primary and secondary hæmorrhage occurred, but were easily dealt with. He had never yet seen as a result of turbinectomy a case of pharyngitis sicca in his own practice or in that of anyone else. Suppuration often lasted several weeks, and scab formation, and occasionally bridging, but were usually quite amenable if a little care was bestowed by the patient. Turbinectomy, in short, was a procedure which required a judicial selection of fit subjects, but was a means which was justified by its end and results in proper cases.

Whether any given case of severe obstruction was a fit one for reduction of inferior turbinated, there would not usually be much difference of opinion among those who were dispassionate on the matter. Indeed, from the opinions expressed that day, he would estimate that out of one hundred cases of extreme and complex structural obstruction (forming, of course, but a small proportion of the total cases coming to any rhinologist) there would only be a margin of 5 per cent. about which opinions would differ.

Dr. DONELAN (London) said: In the cases which had been referred to as of temporary nocturnal occurrence, and in which an operation could hardly have been recommended, he had found considerable advantage from the use of a 5-grain tabloid of suprarenal substance at bedtime. The patients gained much comfort, and in some instances complete relief for about twelve hours after administration.

Dr. ROBERT WOODS (Dublin) said he thought the frequency of spurs on the septum might possibly be due to the recession of the lower jaw in man. This is borne out by the fact that in the lower negroes and aborigines of Australia spurs are much less frequent than in civilized races. The cause most probably is that as the jaw recedes the nasal septum becomes buckled, in order to adapt itself between the upper jaw and the brain case. The rule that should guide us in dealing with the inferior turbinal in cases of obstruction is to take away the smallest quantity of tissue compatible with the relief of the patient. This presupposes a degree of accuracy not likely to be attained when using the spokeshave. It is therefore much better to use instruments under guidance of the eye. The posterior end of the inferior turbinal he removes with an electric snare, and prefers this to the cold snare. He had been interested in the discussion on that form of obstruction to which Mr. Collier referred as "latent obstruction." Some years ago he drew attention to this condition under the name of "nocturnal obstruction," but he thought the term "latent" a better one.

Dr. HERBERT TILLEY (London) wished to add his testimony to the efficiency of submucous division of the tissues in those cases of nasal obstruction brought about by a general hypertrophy of mucosa of the inferior turbinal. Dr. Delavan had recommended this method. An ordinary tenotomy knife answered the purpose very well, and the edge should be kept well against the bone. When internal cicatrization occurred, the mucous membrane was braced up and very great relief afforded to the patient, while no destruction of the surface epithelium had taken place. The fine galvano-cautery point could be used in the same way. He always preferred the cold wire snare for the removal of posterior hypertrophies, because it seemed inadvisable to use the galvano-cautery loop in such close proximity to the Eustachian tube. He used the index-finger to guide the loop over the posterior hypertrophy, and thought that if the naso-pharynx was lightly cocaineized (5 per cent. solution), and it was explained to the patient that the discomfort would be only temporary, the method had many advantages, and was by no means a difficult operation.

Dr. C. E. G. SIMONS said he had found complete turbinotomy actually necessary, and that the cases that had been operated on were perfectly successful and suffered none of the discomforts alluded to, such as pharyngitis sicca. One case (a double turbinotomy) was enabled to do very active work at high altitudes, and was in no way affected by the inspiration of cold air. The question of periodical obstruction in females at the monthly period and at the menopause, he said, was of importance. Few of these cases required surgical treatment, they usually yielded to bromide of potassium in fairly large doses. In a colliery district, he said, a very large proportion of the miners acquired nasal insufficiency whilst at work; but few required surgical treatment; they were usually better off without it.

The PRESIDENT remarked that he considered a decided step had been made in the right direction by the clear expression of opinion that the inferior turbinated bone should not be removed unless the necessary amount of air-way was unobtainable by other means. He had repeatedly protested against the reckless manner in which this operation had been performed by some specialists, and was very glad to find the same view so universally endorsed by those present.

With regard to removing the enlarged posterior extremity of the inferior turbinated body, he preferred the cold wire snare. He did not consider it necessary to tighten the snare slowly with the object of lessening hæmorrhage, as he had not experienced serious

hæmorrhage in consequence. At times the bleeding was profuse for a short period, but it usually quickly subsided.

Mr. MARSH, in reply, said he would first of all wish to pay a tribute to Mr. Parker's contribution to the discussion, as both original and valuable. His experiments would prove of guidance in the treatment of all obstructive conditions. He agreed with him that complete turbinectomy was seldom needed. It was especially called for in cases of asthma with almost complete obstruction when the cautery had failed to give any relief. It should never be done in slight cases in roomy nostrils. He also agreed as to the importance of preserving intranasal structures that were not factors in causing obstruction or other trouble, and that every case should be carefully considered on its merits.

NOTES OF TWO CASES IN WHICH CHRONIC HYPERTROPHIC LARYNGITIS PRECEDED PAPILLOMATA.—CURE OF ONE CASE BY ENDOLARYNGEAL OPERATION.

BY WILLIAM LAMB, M.D., M.R.C.P.,

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As the relation of chronic inflammatory processes to new formations is a subject upon which evidence is as yet scanty, I have thought it worth while to record the two following cases :

Mrs. D——, aged thirty-five, was brought to me three years ago with the following history : For twenty years, or rather more, she had been voiceless, unable to speak except in a hoarse whisper. This dated from an attack of measles, from which she suffered when she was a girl of about twelve. Her general health during all those years was bad ; she was thin, weakly, short of breath, and subject to occasional attacks of dyspnœa, which lasted a few days and subsided under ordinary treatment. These attacks were generally ascribed to cold.

In the summer of 1898 she had the good fortune to come under the care of Dr. Beilby, of Bromsgrove, for one of her attacks of dyspnœa. He diagnosed the condition as laryngeal, but was unable at first to get a view of the larynx. Before he had the opportunity of trying again the patient got a very bad attack of dyspnœa, and he was hastily summoned, to find her unconscious, asphyxiated, but by promptly opening the trachea and performing artificial respiration he succeeded in bringing her round.

A few days later he got a view of the larynx, and found a con-

dition of "puffy-looking, pale-pink swelling, involving especially the ventricular bands and the aryteno-epiglottidean folds." The left cord could not be seen at all, but an occasional glimpse could be caught of a small part of the right cord in front of and behind the enlarged ventricular band. This was practically the condition of things when I first saw the larynx a few days later. There was some stringy mucus about the glottis.

Obviously, we had to do with the subsiding œdema, but the cause of the chronic stenosis of the larynx was not yet clear.

A fortnight later I noted that the enlarged ventricular bands, although but little reduced in size, were no longer smooth and puffy, but looked much firmer, and presented a somewhat mammillated appearance, with a crenated outline; they were plainly papillomatous. A third swelling was also made out projecting from the posterior wall and largely filling up the triangular interval between the enlarged ventricular bands. The three swellings almost filled the lumen of the larynx.

As my suggestion of thyrotomy was declined by the patient, I first removed the projecting part of the enlarged ventricular bands with the galvano-caustic snare. This brought into view a broad fringe of subglottic papillomatous growth projecting beyond the edges of the cords. This growth I scraped away with a curette in successive sittings, and rubbed concentrated lactic acid into the raw surface. The swelling on the posterior wall was treated in the same way. At several points below the glottis I experienced considerable difficulty in destroying the extremely tough, leathery tissue which underlay the papillomatous growth, and which projected in places beyond the edges of the cords. Vigorous and repeated scraping was necessary, and several applications of lactic acid.

There was marked paresis of the adductors for some time after the larynx was free, but when this passed off the patient recovered a very good voice. Her general health improved enormously, and from being a feeble invalid she became a brisk, active woman. After the conclusion of active treatment I continued to swab the larynx occasionally with 10 per cent. salicylic acid in alcohol. In spite of this, however, some recurrence took place within six months at the anterior commissure and below the glottis on the antero-lateral wall. This necessitated two scrapings with the curette, followed by two cautious applications of the galvano-cautery to both places. It is now fifteen months since the last application, and there is no sign of any recurrence of growth. The voice is excellent.

Remarks.—I retained the tracheotomy tube till the treatment

was practically concluded, although the patient wore a plug in it after the first month. I felt that it gave me a free hand in working in the larynx, but as a matter of fact there never was any appreciable reaction. The patient did her house-work as usual all the time, and came to my rooms to be treated. The most unpleasant part of the treatment, she said, was the rubbing in of cocaine at the beginning of each sitting.

The date at which papillomata first developed in this case cannot obviously be determined, but it is, I think, practically certain that they were preceded by hypertrophic catarrh, for the following reasons:

1. The history begins quite definitely with an attack of measles, and the primary trouble in the larynx was, without doubt, a laryngitis, which did not pass off, but became chronic, and gave rise to a considerable degree of stenosis.

2. The presence at various points below the glottis of extremely tough fibrous tissue from which the papillomata sprang. This tissue projected very considerably beyond the edge of the cord at one point, and was extremely troublesome to remove. The success of endolaryngeal methods in an aggravated case is, I think, worth recording.

My second case was that of G. C——, cabinet-maker, aged thirty-three, a cousin of the first patient, who sent him to me about two and a half years ago. He was a delicate-looking man, and complained of loss of voice of two years' duration. The aphonia came on gradually with "colds." On examination, the larynx presented the picture of a pronounced chronic catarrh—general dusky redness with some secretion—and in addition there was very marked enlargement of the left ventricular band. The enlargement was tolerably uniform and smooth in outline, dipping down anteriorly between the cords and bulging out posteriorly towards the middle line of the larynx. There was no line of demarcation between the swelling and the surrounding mucous membrane. The movements of the left side of the larynx were considerably diminished, and there was crossing of the arytenoids during attempted phonation, the right passing in front of the left. The left vocal cord was completely concealed by the swelling.

I punched a circular piece out of the most prominent part of the swelling, and it showed under the microscope the appearance of inflammatory hyperplasia, but nothing to suggest tubercle, syphilis, or cancer. I accordingly removed the bulk of the swelling with Krause's double curettes. Most of the tissue was so tough that I found it quite impossible to punch out circular pieces, but with the

curette that works vertically I was able to partly detach pieces of tissue, and so bring them within reach of the curette that works laterally, which clipped them off. Nearly all the swelling was removed in four sittings. On three occasions I rubbed precipitated sulphur into the raw surface after curetting. This is a painless application, but (as pointed out by Mr. Arbuthnot Lane) it acts as an efficient caustic styptic and antiseptic.

The patient recovered a very fair voice after the second sitting, but it was evident that he was using the ventricular band on the diseased side and the vocal cord on the sound side.

After an interval of nine months the patient returned to show himself while recovering from influenza. He reported steady progress, and said he could now "shout" to his shopmates. On examining the larynx, however, I found some recurrence of the enlargement of the ventricular band, and there was a small ulcer at its posterior and upper part. A disc of tissue punched out from the immediate vicinity of the ulcer showed a typical papillomatous structure, and the sputum contained a few tubercle bacilli. Thus the ulcer was probably tubercular, and the swelling of the ventricular band was no longer simply inflammatory, but had become papillomatous. The two pieces of tissue which show this difference in structure were removed as nearly as possible from the same part of the larynx at an interval of a year. You will see the sections under the microscopes.

The ulcer healed after being curetted and rubbed with lactic acid, and as the voice was quite satisfactory I decided to let well alone.

A year later—a few months ago—the patient returned to me with hæmoptysis. He recovered quickly, and considers himself well, although there is distinct evidence of shrinking of the apex of one lung.

A puckered cicatrix marks the site of the healed ulcer, and the ventricular band is little if at all changed. The papillomatous part seems to have a very slight tendency to increase.

THE TREATMENT OF LARYNGEAL GROWTHS IN CHILDREN.

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THE subject of laryngeal growths in children is one of considerable importance, and I therefore regret that the time at my disposal will not permit of my dealing with it in its entirety. I consequently

intend in the present communication to limit myself to the consideration of the surgical treatment of the most common variety, that of papillomata, or warts, and to consider this from the following points :

1. **THYROTOMY.**—It will, I think, be obvious to anyone who has had experience of this operation, or is acquainted with its literature, that a more unsatisfactory method of treating children, the subjects of these growths, could hardly be devised. Apart from the risks attendant upon its performance, such as permanent alteration or other injury of the voice, chronic stenoses of the larynx, and sometimes death, it is invariably followed by recurrence, and frequent repetitions of the operation, usually at very short intervals, are necessary. Some striking examples of this have been put on record. Lendon reports its performance seventeen times within two years in a child, and eventually a stenosis of the larynx ensued, which necessitated the permanent use of a tracheotomy tube. Abbé opened the larynx four times in a child suffering from suffocating laryngeal papillomata, removed the growths, and cauterized their seats of origin. Notwithstanding this extremely radical treatment they continued to recur, and eventually tracheotomy had to be resorted to. Another case has been recently recorded by the same surgeon with the following operative history : Tracheotomy and thyrotomy ; two months afterwards a second thyrotomy ; a few months afterwards a third thyrotomy ; then a fourth thyrotomy ; and, finally, a second tracheotomy. In this country Permewan mentions the case of a boy of eleven years whom two complete thyrotomies with thorough cauterizations of the affected parts failed to cure. The growths recurred for the third time, and although to all appearances he had not attained a condition of urgency, he was found dead one morning of asphyxia. Walker Downie had a two-year-old child in whom thyrotomy had to be performed six times in one year.

Similar cases illustrative of the inefficiency of thyrotomy, even with thorough cauterization, in the treatment of laryngeal growths in children are abundantly met with in medical literature, and were I to particularize all the instances I have come across, the time at my disposal would be entirely occupied. The cases I have now submitted may without exaggeration be considered representative of the results attained, and will, I trust, carry conviction as to the uselessness, and I would even say the unjustifiableness, of thyrotomy in this class of disease in children.

2. **ENDOLARYNGEAL OPERATION.**—I am, of course, aware that there is not the same objection to this variety of operation in regard to

immediate and remote risks that obtains in the case of thyrotomy. Bergeat mentions the case of a nine-months' child who died of emphysema after an endolaryngeal operation for removal of growths, and Dundas Grant found the operation productive of acute laryngitis. Hopmann experienced such a degree of asphyxia after this operation that tracheotomy was rendered necessary. But such incidents or accidents are alike few and trifling compared with those that sometimes follow thyrotomy. The most serious objections to endolaryngeal operations are the difficulty of performing them in very young children, and the impossibility of carrying them out thoroughly and radically in those of any age. As these growths are sometimes congenital, their removal may be indicated at an early period of life, and if, as we have already seen, thyrotomy, even with thorough cauterization and removal of the vocal cord or other portions of the larynx from which they grew, fail to prevent recurrences, it is most unlikely that such an uncertain operation as endolaryngeal removal will succeed. And so it is.

I do not forget that I am speaking in the presence of an accomplished operator in the person of our President, whose skill in this branch of surgery I had frequent opportunities of witnessing at the Throat Hospital, Golden Square, when he was house-surgeon there, now nearly a quarter of a century ago. But even he had to operate fourteen times under chloroform in order to clear the larynx of a boy aged three and a half years, at that time the youngest on record. But this pales before Stoker's case, that of a patient thirty years of age, who from the age of seven had suffered from papillomata in the larynx. During this period (and before coming into Stoker's hands) he had been operated on by one man 100 times and by another 120 times. He then seemed to awake to the consciousness of the fact that he was occupying more than his share of professional time and skill, for he invested in the necessary armamentarium and thenceforth performed his own operations! Bond has recorded the case of an eighteen-year-old girl in whom, since she was ten years old, papillomata had been removed every two months, amounting to nearly fifty operations. Some may consider these cases extreme examples of recurrences of growth and multiplicity of operations, but, with the exception of Stoker's case, they may be taken as fairly representative of the results of this branch of endolaryngeal surgery in children.

It is to be feared that the published results of many operations claiming success are more or less invalidated by premature publication. This is particularly apt to be the case with laryngeal papillomata in children, not only on account of their marked

tendency to recurrences, but also of the indefinite periods at which these may take place. In some instances recurrence or recrudescence may ensue almost immediately after operation, in others after a few months, rarely after a year; hence any report published or opinion expressed a few days, or even months, after operation, is of no value whatever from the point of view of permanent recovery. At a meeting of the Laryngological Society¹ some time ago a boy aged three and a half years was exhibited. He had suffered from papillomata of the larynx from about his seventh month, and had been operated on five times by two different specialists. He was now exhibited as being interesting as a proof of the practicability of removing laryngeal growths in young children by the endolaryngeal method under local and general anæsthesia, and although only fifteen days had elapsed between the last operation and the date of exhibition, the result was declared by an eminent laryngologist to be most satisfactory, and one on which the operator ought to be congratulated. The further history of the case shows that within two months recurrence took place; another series of four operations was performed by the surgeon who had previously operated and exhibited the patient, but without permanent benefit, for a second recurrence ensued, and ultimately tracheotomy was necessary. This patient, who has been sent to me from India, is now under my care, still wearing the tracheotomy tube.

I need hardly add that I do not quote this case and continue its history with the view of disparaging the operator, but because it brings home to us in a striking way the futility of such operations in children even at the hands of skilled experts, and the propriety of allowing a considerable time to elapse before expressing opinion on the results.

3. TRACHEOTOMY.—In some cases tracheotomy may be a matter of urgency, owing to sudden or threatened asphyxia; in others it may be preliminary to thyrotomy or endolaryngeal operations; or, again, it may be performed not only with a palliative, but also with a curative object. It is chiefly from the latter point of view that I now propose to consider it, and in doing so I shall deal in the first instance with my own cases, and afterwards with those of others. In regard to my own cases, I shall refer to those only which have continued under reliable observation for a minimum period of two years from the date of operation or commencement of operations.

Having experienced the usual recurrences in two cases in which I performed thyrotomy, I determined (in 1883), in a case of sudden severe laryngeal stenosis in a child, due to what turned out to be warty (papillomatous) growths originating in chronic laryngitis

after measles, to rest satisfied with tracheotomy, which had been rendered necessary by the respiratory difficulty, and await the course of events. I did so in the view that, by diminishing cough, affording respiratory and phonatory rest to the larynx, and abstaining at the same time from all operative interference and irritation, a spontaneous cure, similar to what Nature sometimes works out in her own way, would ensue. The result was most satisfactory. The cannula was withdrawn after a year, and a note of the case was published in 1884.² The patient was watched by me under great difficulties for a further period of five years, and another report on his condition, which continued highly favourable alike in respect to the voice and the respiration, was published in 1889.³ I lost sight of him two years afterwards, when he had developed into a strong healthy lad. Including this case I have had seven cases which fulfil the condition of having been under observation for a minimum period of two years. Of these, four completely recovered after having used the cannula for from six to fifteen months. One who had previously undergone thyrotomy by another surgeon disappeared, wearing the cannula, after two and a quarter years; and one, a very badly-nourished child, died from independent disease about two years after tracheotomy, and one year and a half after removal of the cannula. The seventh case is the boy from India already referred to as still wearing the tracheotomy tube. Since tracheotomy was performed, several pieces of growths have been found in the expectoration, and the right vocal cord, from which they grew, is now clear, except its anterior extremity, where slight nodular thickening is present. The removal of the tube is being delayed by the presence of an infraglottic pedunculated papilloma on the right side, the spontaneous separation of which I am now waiting.

It is worthy of notice that the only case which gave any trouble in connection with the permanent removal of the cannula was that upon which thyrotomy had been previously performed. My opinion is that "virgin" cases are more rapidly benefited by tracheotomy than those which have undergone either thyrotomy or endolaryngeal operations.

Since the publication of my first case, confirmatory cases and opinions have been recorded and expressed by the following observers amongst others:

Massei.⁴—Case of papillomata of the larynx, in which after tracheotomy the vegetations, in the course of a year, disappeared in a wonderful way. "In stenosis due to papilloma, tracheotomy is not only an admirably palliative, but also a radical treatment."

Garel.⁵—Two cases: girl of four; tracheotomy on June 11; tube removed on July 30; voice perfect. Boy of eleven; papillomata of epiglottis and larynx; tube removed after two years; tracheotomy strongly recommended.

Oertel.⁶—Two cases, quoted by Hopmann.

Railton.⁷—Two cases, aged three and four years: growths appeared also at tracheotomy wound; these were shaved off, and ultimately atrophied; tubes used for three and a half and two and a half years.

Eliasberg.⁸—One case: twelve-year-old boy; thyrotomy twice, with removal of the vocal cord on which the growths were situated; recurrences; tracheotomy; cannula removed after three months; no recurrence after two years.

White.⁹—One case: boy, aged six years; growths removed *per vias naturales* several times; recurrence with suffocative attacks which necessitated tracheotomy; subsequent attempts to remove the growths resulted in increasing the neoplasms. When all operative efforts ceased, the growths began to disappear, and the boy is now quite well. Tracheal growths also disappeared. Tube worn for five years.

Cowgill.¹⁰—One case: child, aged six years; spontaneous recession of laryngeal papillomata after tracheotomy; tube worn for three years and eight months.

Chappell and Gleitsmann.¹¹—One case: girl with larynx full of papillomata; tracheotomy; spontaneous disappearance of all the growths in five months.

Baumgarten.¹²—Noticed a remarkable diminution of papillomata in nearly every case after tracheotomy.

Carmichael.¹³—Two cases, not yet reported, but authorized to be quoted in this paper.

These records of cases by other observers, which might easily have been augmented, have one feature in common with my own cases—they make no references to recurrences of the growths, and consequently none to repetitions of the operation. In this respect the results bear a striking difference to those obtained by thyrotomy or endolaryngeal operations, in which, as we have seen, recurrence is the invariable rule.

The sole reference to recurrence *after tracheotomy only* which I have been able to find is by Simpson, who, in the course of a discussion at the Carlisle meeting of the Association in 1896 on a paper read by me on this subject in the section of Diseases of Children, said he had seen a case in which the growth recurred after tracheotomy. No details were given of this most unusual

occurrence, nor has it been confirmed by any other observer, and I am therefore disinclined to accept it as a record of an actual fact.

A point of some importance for determination is as to the period when tracheotomy should be performed. Children with laryngeal papillomata occasionally indicate a tendency to develop sudden and intense dyspnoea, which may rapidly pass into complete asphyxia with a fatal termination, as in Permewan's case and in one narrated by Kanthack. I have seen one case in which the sudden accession of dyspnoea rendered tracheotomy necessary at an earlier period than I had anticipated. Brouardel remarks that in adults sudden death may be due to a polypus in the larynx, and that a tracheal growth may give rise to spasm which may prove fatal, but whether this spasmodic element may be present in children I have been unable to determine. It seems to me that a safe rule to follow would be to open the trachea whenever complete and permanent aphonia is present without waiting for the onset of dyspnoea. It is right, however, to bear in mind that infraglottic papillomata may be present without much vocal alteration, but with considerable respiratory disturbance.

The drawbacks and objections to tracheotomy, apart from those connected with the performance of the operation and the subsequent management of the case, and which are really *nil* at the hands of an experienced surgeon, may be considered as belonging to the bogey class. The first bogey is the old one that tracheotomized children seldom attain to puberty, an assumption which has long been falsified by the statistics of Jacobi and others. Bogey No. 2 may be found in a recent work of surgery, where the author, referring to the treatment of papillomata of the larynx by tracheotomy only, says: "Even if this were true, the risks to the child are considerable, as respiratory affections are common and very dangerous in tracheotomized patients." These assertions are directly opposed to my experience, as they are to that of all others whom I have addressed on the subject.

4. OTHER METHODS.—I shall glance very briefly at these. Intubation has been made use of, and although I have practised this operation in numerous cases of laryngeal diphtheria in children, I have never used it in papillomata. Lennox Browne saw severe hæmorrhage ensue after its employment, and upon the whole the general opinion is that it is unsuitable. At any rate, I can find no records of success from its use, with the exception of a case by Baldwin, who reports an eight-year-old girl cured by what is known as "intermittent intubation."

The relation of adenoid growths to papillomata of the larynx has been raised by Lennox Browne, who mentions a case in which the growths disappeared after tracheotomy. There can be no doubt that it is good surgery to remove whatever may be causative of laryngeal irritation or inflammation, and in this category such conditions as adenoid growths, enlarged tonsils, and post-nasal catarrh undoubtedly fall. None of my cases which underwent tracheotomy had adenoid growths. I have, however, seen a few cases in which the persistent huskiness, which is sometimes an early prelude to the development of papillomata, completely disappeared after the removal of adenoids. I may add that in the case from India already referred to, adenoids and enlarged tonsils were removed without preventing the subsequent recurrences.

In conclusion, I ought to notice, what is doubtless already known to you, that these warty growths are sometimes the result of congenital syphilis, especially when they are multilocular (in situation). Delie mentions a case of papillomatous vegetation on fauces, pharynx and larynx, which rapidly yielded to antisiphilitic treatment, and Freudweiler, in a case of multiple papillomata of the palate and larynx, found that they had the microscopical characters of condylomata.

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DISCUSSION.

Dr. PERMEWAN (Liverpool) thought the removal of the tracheotomy tube was the real difficulty, but he quite agreed with the reader that the results of other methods were unsatisfactory.

Dr. SCANES SPICER (London) could by no means agree with Dr. Hunter Mackenzie that endolaryngeal removal of multiple papillomata in children was futile. He thought it was easy, and should be tried first. It was true he only spoke from a personal experience of four cases, but in two of these a complete and permanent cure lasting over years had resulted. He removed three growths at repeated sittings under combined general anaesthesia

and local examination, as originally described by him at the Bristol meeting of the British Medical Association. His third case—a tubercular child—died of pneumonia some months after the operative treatment. His fourth case he now heard of again, after over a year's interval, in Dr. Hunter Mackenzie's paper. This last case, a boy of three and a half years, son of an I.M.S. doctor, was never claimed as a cure of multiple papillomata, but was shown at the Laryngological Society of London as a proof that it was quite practicable to thoroughly clear a young child's larynx of multiple papillomata by endolaryngeal means and restore the voice at once, after two leading laryngologists had stated this was not practicable, and that the patient must wait for relief until he was of such an age as to assist instead of resisting laryngeal manipulations. This child had to return to India at a period at which anyone knowing the course of papillomata could not have possibly guaranteed a cure, and, indeed, recurrence was so much expected that emergency tracheotomy was recommended whenever the symptoms became serious, pending the continuance of endolaryngeal measures to stamp out the growths. The endolaryngeal method could not be condemned on the strength of the case; it had not been persistently applied, while, judging from the report, the emergency tracheotomy which was done in India over a year ago had had but little effect on the growths or on the voice, and the problem of the removal of the tube and the education of the voice had still to be dealt with.

Dr. HERBERT TILLEY (London) thought that inefficient removal of papillomata of the larynx accounted in great part for the frequent recurrence after endolaryngeal removal, and that anything which aided more complete ablation of the growth would tend to enhance the value and more permanent results of such operative interference. He laid great stress on the perfection of anæsthesia, and in his own experience these cases had been very satisfactory when a highly-skilled anæsthetist had assisted him. The little patient was operated on in a sitting position, and the manipulations of the operator were carried out during successive intervals, in which the laryngeal reflex was abolished. This period could only be maintained for some twenty to thirty seconds at a time, the reappearance of deglutition being a sign for further anæsthetization. Under such circumstances the operation was by no means difficult to a skilled laryngologist. He thought that endolaryngeal methods should be given a very fair trial by skilled operators before tracheotomy was performed, especially in the better class of patient. The latter operation not only entailed a distressing loss of spirit for many months, but also interrupted the education of the child, and

prevented the enjoyment of many games and social exercises which played an important part in the education of children.

The PRESIDENT thought most cases could be cured by time and patience. Tracheotomy was not curative, although it might tend to prevent recurrence. He disapproved of thyrotomy on account of the injury to the voice. Under anæsthesia in a young child, it was only during the first half-minute that a view could be obtained, and there must be no sponging. A view was not necessary if the operator was familiar with the larynx and if the situation of the growths was known. Insufflations of dried alum two or three times a week were useful in preventing recurrence.

NOTES ON A CASE OF RECURRENT PAPILLOMATA OF THE LARYNX IN AN ADULT, TREATED LOCALLY BY FORMALIN.

BY ADOLPH BRONNER, M.D.,

Senior Surgeon to Bradford Eye and Ear Hospital; Laryngologist to Bradford Royal Infirmary.

RECURRENT papillomata of the larynx, Dr. Bronner said, were most difficult to cure, as they invariably recurred after removal. In children, tracheotomy was the most successful method of treatment; in adults, tracheotomy was not only more dangerous, but also impracticable for other obvious reasons. Many local remedies had been recommended, but with no success. He had treated a case with formalin, and this had seemed to prevent recurrence of the growths. Mr. P——, a man of forty-five, was seen in June, 1896. He had been hoarse off and on for over two years, and was getting steadily worse. Both vocal cords were covered with typical papillomata. These were removed by forceps every two to four months. Various local remedies had been used. In December, 1897, patient had a severe attack of laryngeal spasm, which nearly proved fatal. In December, 1898, a large number of growths were removed. A spray of formalin (1 in 1,000, increasing up to 1 in 100) was ordered. In March, 1899, a few growths were removed. These were much smaller and more rounded than the previous growths; since then there had been no recurrence of the papillomata. The vocal cords were thickened and irregular, but the voice was nearly normal. Dr. Bronner had brought the case before the meeting to elicit information if any other cases had been similarly treated, and with what results. He hoped that members would try formalin in similar cases and would publish the results.

MULTIPLE PAPILLOMATA OF THE LARYNX.

BY N. C. HARING, M.B. LOND., M.R.C.S.,

Senior Assistant Physician to the Manchester Hospital for Consumption and Diseases of the Throat.

Description.—The growth occurs in pinkish masses, sessile, or shortly pedunculated, affecting by preference the anterior portions of the larynx, but in many cases arising from the whole surface. Most serious are the cases where there is much subglottic growth.

Incidence.—It forms a large percentage of the laryngeal growths in children up to the age of puberty, but is not common in adults. As pertains in all laryngeal growths, the male is more liable than the female.

Pathology.—Microscopically the growth is seen to consist of proliferated epithelium with but little fibrous structure, and may closely simulate epithelioma. There is no infiltration of contiguous parts. The distinction from a malignant growth, which is difficult in a post-mortem specimen, may be almost impossible clinically, as one has to demonstrate that the epithelial cells do not extend below the border-line between the laryngeal epithelium and connective tissue.

Etiology.—There is usually no history of antecedent chronic laryngeal disease, nor of any family predisposition. It may appear congenitally. There is strong reason to believe that this growth is analogous to warts on the skin, and especially so in its doubtful relations with epithelioma.

Symptoms and Diagnosis.—The ordinary ones of laryngeal growth; unless pieces of the growth are expelled during cough, the diagnosis can only be made by obtaining a view. In children, where ordinary laryngoscopy may be difficult or impossible, I have found the direct view into the larynx by means of Kirstein's or Escat's tongue depressor, with or without an anæsthetic, almost invaluable.

In children there is little fear of malignancy, but in adults it is necessary to note carefully that there is no fixation of any part of the larynx before the possibility of malignancy can be dismissed.

Treatment.—Recurrence is almost certain unless the removal is complete. Thus, endolaryngeal treatment is rarely successful. Brushing over with phenol-sulpho-ricinate, which renders the growth friable, is a useful adjunct to endolaryngeal manipulation.

Tracheotomy is often necessary to relieve the dyspnoea, and in some cases is sufficient to cause spontaneous involution of the

	<i>Female (H. W.).</i>	<i>Male (J. Mc.).</i>	<i>Male (T. M.).</i>	<i>Male (L. R.).</i>	<i>Male (R. N.).</i>	<i>Female (E. M.).</i>
Age when first seen.	Forty-five.	Eleven.	Nine.	Four.	Three.	Two.
Duration of symptoms.	Cough; hoarseness about six months.	Hoarseness about two years; cough.	Hoarseness about eight months.	Always hoarse; much worse last few months.	Dyspnea from birth; hoarse a few months.	Hoarse from birth.
Examination.	Ordinary laryngoscopy; spasm easily set up.	Ordinary laryngoscopy easy.	Ordinary laryngoscopy.	Direct view; ordinary laryngoscopy impossible.	Ordinary laryngoscopy; severe spasm.	Direct view; ordinary laryngoscopy very difficult.
Treatment, etc.	Repeated endolaryngeal. Phenol-sulpho-ricinate of no use. Pneumonia probably set up by portion of inspired growth.	Endolaryngeal treatment caused proliferation of growth. Phenol-sulpho-ricinate of no use. Tracheotomy to relieve dyspnea. Three months' later thyrotomy, which had to be repeated with complete removal of growth, curette, and chromic acid.	Endolaryngeal treatment caused irritation. Phenol-sulpho-ricinate of no use. Tracheotomy, thyrotomy, scissors, curette, chromic acid.	Tracheotomy, after three months' thyrotomy, scissors, curette, chromic acid.		At present under treatment, phenol-sulpho-ricinate and endolaryngeal.
Result.	Death from sudden laryngeal spasm.	No recurrence two years; good voice; can sing with harsh voice.	No recurrence five years; fairly good voice.	No recurrence fourteen months; voice strong but rough.	Death from laryngeal spasm two days before the day fixed for operation.	

growth. For radical treatment I have found thyrotomy most satisfactory. In order to preserve the voice it is imperative to divide the thyroid cartilage in the middle line and to avoid cutting the vocal cords. Spraying with extract of suprarenal capsule much reduces the hæmorrhage. The growth is best removed with curved scissors, the places of origin freely curetted and cauterized by the application of solid chromic acid fused on a probe. Absolute thoroughness of removal is necessary or recurrence is certain.

AURAL CASES FROM SOUTH AFRICA.

By G. P. FIELD, M.R.C.S.

Consulting Aural Surgeon, St. Mary's Hospital, London.

CASE I.—Lieutenant L——, wounded in the Boer War by a splinter of shell, which had passed through the antrum and palate, had sustained from the same cause injury to the right membrana tympani. Cure of the otorrhœa and healing of the membrane resulted in restoration of hearing.

CASE II.—Trooper G——, a New Zealander, came to me suffering from double perforation, due to combined starvation and exposure at nights during the Boer War. Cured by application of a 10 per cent. solution of trichloroacetic acid.

CASE III.—A. H——, another sufferer from the war, kicked on the right side of the head by a stampeding horse. Result: Incurable deafness of the left ear, probably from damage to the labyrinth.

CASE IV.—Major C——, deafness from concussion of heavy guns. Treatment: Rest to the ear, counter-irritation over mastoids, and potassium iodide internally. Result: Nearly complete recovery.

CASES V. AND VI.—Messrs. T—— and E. G. M——. Instances of chronic non-suppurative catarrh and polypus respectively from a prolonged exposure to cold, rainy weather in Zululand. Successful treatment after the lapse of three years:

CASE VII.—X—— suffered from absolute deafness, with tinnitus and giddiness, developed about nine months after contraction of syphilis. Treatment: Hypodermic injections of $\frac{1}{8}$ -grain doses of pilocarpin. Result: Negative at first, but eventually complete restoration of hearing of the left ear and general improvement in health.

CASES VIII. TO XII.—Aural exostoses. These, in the author's experience, are best treated by making a small opening with the dentist's drill. A sequence of cases affords confirmation of the author's original opinion as to the frequent causation of exostoses

by persistent sea-bathing. In one instance, at least, double exostoses appear to have originated in irritation due to the use of the binaural stethoscope. Case X. afforded an example of the risk of the formation of abscess attendant on delay in operation. Case XII. was an instance of the comparatively soft and bony exostoses met with chiefly in women. A main feature in all these cases was the good results accruing from the drilling of an opening of small calibre through the apices of the ivory exostoses.

MORBID CONDITIONS SIMULATING ADENOIDS.

BY WYATT WINGRAVE, M.D.

Physician and Pathologist Central London Throat and Ear Hospital.

A LARGE number of children come under our observation who, while exhibiting some or all of the classical symptoms of adenoids, are found on examination to be free from that trouble.

These cases increase in number as laymen become more familiar with the existence of this affection, and are consequently prompt to seek relief with a ready-made diagnosis.

It may happen even that the classical signs are present in so striking a degree that a detailed inspection by finger or mirror is considered superfluous by the practitioner himself, and he takes their existence for granted. For this there is much justification, since digital exploration is not always expedient without an anæsthetic in the case of a very sensitive child accompanied by a hyper-sensitive parent.

Posterior rhinoscopy is proverbially difficult in children, especially those who are the subjects of enlarged faucial tonsils; we have, therefore, practically to depend upon our sense of touch for a *positive* confirmation, and any other evidence, however conclusive it may appear, is at the best only presumptive.

Still, further complete removal of tonsils and adenoids is not infrequently followed by persistence of the symptoms, and we are often unjustly inclined to blame the parents for neglecting the necessary post-operative treatment. Estimation of such a case will probably reveal one or more of the conditions to be described.

Excluding those forms of nasal obstruction readily recognised by anterior rhinoscopy, the morbid conditions symptomatic of adenoids may be thus grouped: (1) Diminutive choanæ and nostrils. (2) Low vault of naso-pharynx. (3) Paresis of soft palate and pharynx. (4) Vomerine crest. (5) Distortion of vertebral column.

(6) Retropharyngeal abscess. (7) Hypertrophy of palate tuberosities. (8) Webs and neoplasms.

1. Diminutive choanæ and nostrils occur very frequently. They are commonly associated with low vault of pharynx and imperfect development of the maxillæ, together with an immobile velum palati and a gothic arched palate. Choanal stenosis may be due to the mucous membrane being so thickened as to obstruct the breath-way, or the osseous walls themselves may be contracted. In either case the apertures are often reduced to the diameter of a cedar-pencil. When only the mucous membrane is at fault, the finger-tip will suffice to remove the obstruction, which feels like a web, and might easily be overlooked if the precaution of thoroughly exploring the choanæ with the finger-tip be neglected. The nostrils may be uniformly diminutive or may themselves be normal in size, while the turbinals are disproportionately large. The former condition seems to be closely associated with the development of the maxillæ, since it is not often found after the sixth year, when those bones with their sinuses undergo a marked enlargement as the eruption of the permanent teeth proceeds.

Turbinal disproportion, although it may be found at any age, is especially associated with puberty, and the balance may not be restored for several years. This must not be confused with that form of localized hypertrophy which involves the posterior end of the turbinal only and belongs chiefly to adult life (varix).

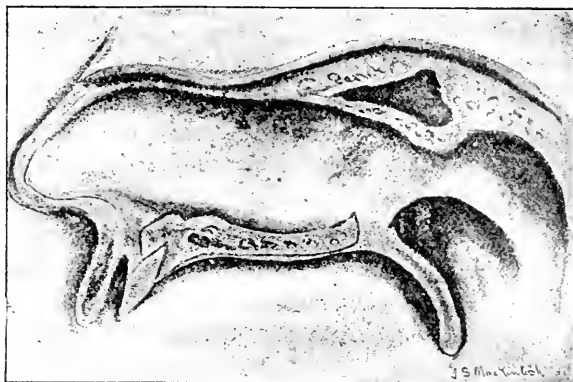
2. Low pharyngeal vault. This condition occurs in ill-nourished and rickety children, often accompanying small choanæ and imperfect development. It was particularly well illustrated in two recent cases (sisters, aged five and six), with non-development of the maxillary antra, the pharyngeal vault being only about $\frac{1}{2}$ inch above the level of the hard palate, and the nasal fossæ being also very small, nasal respiration was practically impossible.

3. Paresis of soft palate and pharyngeal muscles. These may be the result of any form of nasal obstruction. They may be due to various forms of paralysis, central and peripheral, or they may be the legacy of tonsils and adenoids already removed, when correction of bad breathing-habits has been neglected.

4. Prominent crest of the vomer, or prolongation backwards into the pharynx of the nasal septum, is by no means a rare deformity; it occurs as a deep crescentic ridge extending sagittally across the vault of the naso-pharynx (from which it seems to hang) to the posterior wall, so dividing it into two pockets. It is generally very tough, since it consists in part of a bony extension of the posterior border and alæ of the vomer, continued to the vertebral

aponeurōsis by a tense band of fibrous tissue covered with mucous membrane. Probably it is due to a persistence and exaggeration of the ethmo-vomerine plate from which the nasal septum is developed. Although *per se* it can scarcely be the cause of much obstruction, it is, however, often associated with any of the other abnormalities included in this list, and the "pockets" may contain adenoids which are easily missed when operating.

The appended illustration was kindly drawn for me, from typical cases and an old museum model, by Dr. J. Stewart Mackintosh.



VOMERINE CREST OF NASO-PHARYNX.

5. Forward projection of the vertebral column. In this deformity the arch of the atlas is the chief offender, but the second and even third cervical centra with their discs may also be involved, encroaching upon the naso-pharynx to such an extent as to barely admit the finger-tip behind the nasal septum.

6. Retropharyngeal abscess. In addition to the classical varieties of this condition, which we meet with in our own practice, there is one deserving special attention—I refer to the retropharyngeal lymphatic gland, which lies in the cellular tissue, and is supposed to be only present in early life.

This gland may be the seat of acute or chronic inflammation, and so give rise to swellings which may seriously encroach upon the upper breath-way. Infection from adenoids or from operations is by no means improbable, and I have seen two cases in which a retropharyngeal abscess in this situation immediately followed the removal of the adenoids. Infection from middle-ear disease has also been suggested.

7. Undue prominence of the soft parts covering the internal pterygoid plate (its hamular process) and the tuberosity of the

palate forms by no means a rare encroachment upon the post-nasal space. It may be alone, or it may accompany the other deformities, and is always associated with general thickening of the mucous membrane of the part, and it may also materially interfere with tonsillotomy unless a narrow guillotine be employed.

8. Finally the post-nasal space may be obstructed by webs and by neoplasms, whose description is beyond the limits of this short note, which includes the commonest only of those morbid conditions that simulate or are responsible for the existence and persistence of "adenoid" symptoms.

A purely functional illustration of the subject is ably discussed by Dr. Marcel Natier in the June number of *La Parole*, under the title "Faux Adénoidisme."

SOCIETIES' PROCEEDINGS.

SEVENTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY.

A Case of Corrected External and Internal Deformity of the Nose.

Dr. T. PASSMORE BERENS, of New York City, presented a patient, together with two photographs taken before the operation on the septum.

The young man had come to him with a history of an injury received to the nose in early childhood. The bridge of the nose was very large, much elevated, and deflected to the left, forming a large, disfiguring hump. The septum was deflected to the left, and adherent, causing almost complete occlusion of the nares. The nasal bones and part of the cartilages were laid bare, and the bony hump divided with a chisel. The parts were closed and the wound dressed. The operation was in part a cutting and in part a crushing operation, and had been done on March 5, 1901. Healing had been rapid.

Dr. OTTO J. STEIN, of Chicago, said he understood a forceps had been used to break loose the nasal bones from their attachment to the frontal and superior maxilla. He had himself done this operation several times, and on the last two occasions had experienced great difficulty in breaking the bones loose from the superior maxilla. The condition brought about by the blows had been so severe that it did not seem to him that its repetition was warranted.

Thrombus of the Lateral Sinus. Dr. THOMAS J. HARRIS, of New York City, presented a case of thrombus of the lateral sinus.

The patient was a man, about twenty-three years of age, who had been admitted to the hospital on April 3, with a history of pain and otorrhœa for about one week, and a swelling in the neck. There was no elevation of temperature at the time, and he complained only of frontal headache. A few days later an exploratory incision was thought to be necessary, and accordingly the mastoid cells were opened, but nothing abnormal was found. On going into the sinus a long clot had been found and removed. From that time to April 17 he had done well, but on a return of the symptoms the incision had been extended to the clavicle, and the jugular vein opened. No clot had been found until the facial vein had been reached. The man had been very ill for several days afterwards, and had had a metastatic pneumonia. At no time had there been any tenderness over the mastoid, and no pus had been found in this region. The pain complained of had been almost wholly over the frontal lobe of the brain. The symptomatology of this case had been quite obscure.

Dr. M. D. LEDERMAN, of New York City, said that one must not expect to find the classical symptoms either in sinus or mastoid disease. In one of his own cases there had been a running ear for ten weeks, but none of the classical symptoms of mastoiditis. The usual mastoid operation had been done, and no disease of the sinus found. Paracentesis had resulted in the withdrawal of blood. In his opinion, such a procedure was not sufficient; it was better to make a bacteriological examination in addition. After a week or two in this case the sinus had been exposed and jugular thrombosis found. The vessel had been ligatured near the clavicle, and opened, but no blood found. Owing to the very bad condition of the patient, the complete operation had not been done. The patient ultimately died. In another case there had been acute involvement of the mastoid in a woman who had had one child. The sinus was curetted to within one inch and a half of the torcula, and the jugular exposed. It was tied close to the clavicle and opened, and a turbid fluid was found. About ten days afterward there had been an elevation of temperature and a swelling of the neck. On cutting down upon this no pus was found, but an inflammation of the veins existed. Under a wet dressing the patient had made a good recovery.

Dr. WALTER B. JOHNSON, of Paterson, N.J., said that he had had a similar case to the one presented by Dr. Harris. The patient had presented all the symptoms of homesickness, and in consequence she had been sent home. She had temporarily improved.

When the true nature of the case had been discovered, operation on the jugular had been advised, but had been declined, and the patient died.

Dr. HARRIS said that it should always be remembered that it was not necessary for the patient to have a decided chill before one felt justified in making a diagnosis of involvement of the sinus. In the case under discussion there had been no chill, but there twice had been chilly sensations. With high temperature and chilly sensations, one was warranted in making an exploration.

The Nature of Cancer. Dr. HENRY L. WAGNER, of San Francisco, presented drawings illustrative of the work done by an investigator in his city on the nature of cancer.

About two months ago this gentleman—Dr. Eisen—had become infected with cancer, and was now practically in a dying condition. His important and interesting research had been completed about two years ago. This gentleman had even studied the development of the spores in his own case. Upwards of seventy cases of carcinoma had been investigated in this way, and the results would be eventually published in detail in book form.

Traumatic Dislocation of the Left Arytenoid Cartilage. Dr. H. L. WAGNER was the author of this paper.

He said that such dislocation was very rare; he had only been able to find one such case on record. His patient was an old man, about seventy years old, who had been struck in the throat by the fist of a drunken soldier. The patient complained of great pain on deglutition, but there was no bloody expectoration. Under an alkaline spray and an ice compress the swelling rapidly diminished, and examination then revealed dislocation of the left arytenoid cartilage with fixation between respiration and phonation alone. There was no fracture of the cartilages.

Dr. W. FREUDENTHAL, of New York City, said that he had seen several cases in which he had suspected fracture of the cartilages, and in them crepitation had been elicited, but in these persons, as well as in others, this crepitation was normal.

Dr. WAGNER said that in his case there had been crepitation at first, but it had very quickly disappeared, whereas in cases of infraction or fracture that he had observed this crepitation had existed much longer. He was of the opinion that when the arytenoid cartilage was slightly separated from the cricoid joint there would be crepitation.

A Congenital Deformity of Both Auricles. Dr. WAGNER presented a photograph of this condition.

The patient was a boy of five. There was an absence of the inner part of the upper helix and great overdevelopment of the antihelix. The deformity was the result of an arrest of development occurring during the second and third months of intra-uterine life.

Disease of the Upper Air-passages in Relation to the Mental Development. Dr. L. F. PAGE, of Indianapolis, Ind., read this paper.

He said that the intimate relation between the blood spaces of the mucous membrane and the subarachnoid space had been thoroughly demonstrated, and an equally intimate relation exists between certain venous regions of the nose and the interior of the skull. The capacity of the lymphatics of this region for absorbing toxins was often observed in diphtheria, and impure blood was one of the causes of interference with mental development. Engorgement of the erectile tissues and the irregularities of the nasal cavities often interfere with drainage, and so give rise to contamination of the blood. A study of the anatomy of the nasal fossæ showed plainly that this region should be a fertile source of reflex disturbance, and it was not difficult to imagine that such irritation might exert an important influence on the psychological function of the brain. A bony spicule or an enlarged turbinate, by constant pressure and irritation, may cause exhaustion of its special centre, and gradually and secondarily affect the whole nervous system. Constant overstimulation meant exhaustion sooner or later. The author said that he had been often impressed by the mental defects exhibited by children with adenoids and enlarged tonsils, and the mental improvement which followed the removal of these pathological conditions.

Dr. PRICE BROWN, of Toronto, said that the effect of the presence of adenoids or other hypertrophic lesions in retarding the mental development was very evident, and the fact should be noted and emphasized. Two children had been recently brought to him with the statement that, while they had been bright and intelligent in infancy, they were becoming more and more dull and stupid. Examination showed the naso-pharynx obstructed by adenoids, and the younger child had never breathed through the nose. These facts should actuate the physician to inform the parents of dull children of the reasons for such lack of mental development.

Dr. GEORGE T. RICHARDS, of Fall River, Mass., said that he had recently seen a boy who had become so dull that he had refused to

go to school any longer because he realized how backward he was. On restoring nasal respiration the child's mental condition had rapidly improved.

Dr. E. E. HOLT, of Portland, Me., said that this brought up the necessity for having a school physician who should not be in general practice, and who should be unusually well qualified and broadly educated. He thought every member should use his influence towards securing proper medical supervision at school. He also thought that the records which would accumulate as a result of such a system would prove most valuable from a sociological point of view.

Dr. SARGENT F. SNOW, of Syracuse, N.Y., said that the general practitioner should be impressed with the fact that not only did adenoids exert a bad influence on the general development, but that good ventilation of the olfactory region must be secured. Mention was made of a boy who was becoming dull mentally, yet examination showed only occlusion of the middle and superior air-passages. General medical treatment and simple local applications had speedily changed the whole complexion of the case. He had a case of epilepsy which was undoubtedly due to intranasal pressure.

Dr. FREDERICK C. COBB, of Boston, Mass., thought it was most important for the specialist to ascertain what pathological states give rise to reflex disorders, and what cases of this kind can be cured.

Dr. JAMES F. McCaw, of Watertown, N.Y., cited a case in which he questioned if the apparent mental deficiency were not due to deafness. He was of the opinion that the mental deficiency found in children with adenoids was often not directly the result of the adenoids, but of the associated impairment of hearing.

Dr. L. A. COFFIN, of New York City, also thought the dulness was often apparent rather than real. There was frequently a loss of self-confidence, which was restored by operation. The main factor seemed to be a lack of perception. The child with the stuffed-up nose was engrossed with himself, and could not give attention to his teacher without the exercise of more self-control than he could exert.

Dr. FREDERICK T. ROGERS, of Providence, R.I., said that for some years it had been the custom in Providence to place the backward children of the city in special schools. At one time he had examined the children in one school, and about 70 per cent. of them had been found to be suffering from obstruction of respiration, or from some high error of refraction. He personally knew of certain of these children who had been taken out of these special

schools and returned to the ordinary schools because of the mental improvement resulting from treatment directed to these defects.

Dr. ALVA B. ABRAMS, of Hartford, Conn., said that he found patients and physicians seemed to derive much comfort from the statement unfortunately often found in the text-books, that adenoids and similar growths shrink up and give rise to less trouble in later life. While, of course, this was the result exceptionally, it would be better if physicians would forget that this happy termination ever occurs.

Dr. PAGE, in replying, said that he had met with several cases in which children who had been late in talking had very soon acquired the power of speech after an operation for the removal of adenoids, and from this he inferred that the presence of adenoids sometimes interferes with the development of the speech centre.

Tubercular and Syphilitic Granulomata of the Nose. Dr. WILLIAM LINCOLN, of Cleveland, O., was the author of this paper.

In it he reported two cases of granulomata of the nose, presenting similar appearances, though one was tuberculous and the other syphilitic in nature. The first case was that of a woman of forty-six, who had contracted syphilis five years previously. Six months before coming under observation obstruction of the right nostril had begun. Examination showed a rounded, non-pedunculated tumour springing from the surrounding healthy mucosa. It bled easily, and was not tender. On the hard palate were several characteristic syphilitic ulcers. Microscopical examination showed typical tubercular tissue with giant cells. Physical examination of the chest was negative. The patient was put on iodide in increasing doses. Within three weeks the ulcers had healed and the tumour had markedly diminished. A month later the granuloma had completely disappeared. The second case was that of a woman, forty-five years of age, who had lost flesh and had night sweats. For some months she had been troubled by nasal obstruction. Examination showed a pale red sessile mass on the cartilaginous septum without ulceration. There was no history of syphilis. Microscopical examination showed the ordinary structure of tubercular granuloma with giant cells, but no tubercle bacilli could be found. A course of treatment with mercury and iodide had no effect, and accordingly the growth was curetted. About eight months later the patient returned with a similar condition in the other nostril, and in a similar site. The patient then gave evidence of tuberculosis of the lungs. It was possible to construe this case as one of primary tuberculosis of the nose. An interesting deduction

was that the diagnosis could be made better by the consideration of the results of physical examination and treatment, than by dependence upon the histological examination. The treatment of tubercular granulomata should be by thorough curettage.

Some Observations upon the Diagnosis and Treatment of Specific Disease of the Naso-pharynx. Dr. P. S. DONELLAN, of Philadelphia, read this paper.

He said that he had recently seen a case of chancre on the posterior arch of the palate, the diagnosis being evident from the appearance, and being confirmed by the subsequent course of the disease. There was nothing in the history to point to the manner in which infection had taken place. Ulcerations of the pharynx were common, and were associated with painful deglutition and obstruction of respiration, and the usual symptoms of "catarrh," the diagnosis usually made by the general practitioner after a superficial examination. He had been impressed with the importance of making a routine thorough examination of the naso-pharynx with the aid of White's palate retractor. A bacteriological examination of the secretions of the lesion and antisyphilitic treatment would usually enable one to make the differential diagnosis between tuberculosis, syphilis and diphtheria in obscure cases. Local and systemic antisyphilitic treatment were called for in syphilitic disease of the naso-pharynx. He was personally in favour of the hypodermic method, using bichloride of mercury in doses of $\frac{1}{16}$ to $\frac{1}{4}$ grain. The injections are usually given deeply into the muscles of the lumbar region. He gave the mercurial as long as the disease showed activity, and then interruptedly for two years. The alkaline douche and black wash should be used locally. Where there was much dysphagia, orthoform sometimes proved useful.

Dr. GEORGE L. RICHARDS, of Fall River, advised that a thorough trial of antisyphilitic treatment should be given in cases in which a diagnosis of syphilis had been made before resorting to any surgical interference, for the chances were that such interference would then be found unnecessary.

Dr. L. A. COFFIN, of New York City, referred briefly to two desperate cases of syphilis in the pharynx.

Dr. CHARLES F. McCAHAN, of Aiken, S.C., said that in his experience most of the cases of tuberculosis of the throat are secondary, and he believed that the same was true of tuberculosis of the nose.

Dr. PRICE BROWN, of Toronto, said that a gentleman had been

referred to him by an oculist some six months ago for nasal treatment, with the statement that the man had specific keratitis, and had been receiving antisypilitic treatment. Examination of the nose showed that the trouble there was traumatic, not syphilitic. He subsequently returned with a perforation of the soft palate, evidently the result of the formation and breaking down of a gumma. The history showed that he had become syphilitic ten years before, but after having been treated for a time had married. Both children were healthy, and the wife is said to be healthy. Under antisypilitic treatment the condition of the palate had been kept in check.

An Operation for Prominence of the Auricle. Dr. THOMAS R. POOLEY, of New York City, read a paper on this subject.

The patient was an actress, twenty-eight years of age, and the operation had been done on both ears at an interval of a few days, following closely the method of Dr. Edward T. Ely. An incision was made through the skin along the entire length of the furrow formed by the junction of the auricle with the side of the head. This was joined at each end by a curved incision and the skin dissected off. An elliptical piece of the cartilage $\frac{1}{8}$ by $\frac{1}{3}$ inch was removed. The wound was united by seven interrupted sutures of black silk, four passing through the skin only, and the other three through both skin and cartilage. The operation was done under local cocain anæsthesia under strict asepsis. The wound behind the ear healed by first intention, and that in front by granulation. The first operation had been done on August 6, 1900, and the patient was well satisfied with the result, and he had been pleased with the method of operating.

Dr. M. D. LEDERMAN, of New York City, reported two cases upon which he had operated. One was a large sebaceous cyst, in which, after the removal of the cyst, the auricle had been bent over on the external canal. He had accordingly made a V-shaped incision over the mastoid and removed a portion of skin. Primary union had taken place. The other case was in a negro, who had a keloid growth on the lobe of the ear.

Dr. T. PASSMORE BERENS, of New York City, spoke of a case in which the protrusion of the ear was caused by an excess of cartilage of the concha. In that case he had excised a piece of cartilage nearly $\frac{1}{2}$ inch in its broadest part. The wound was closed simply by a buried suture, and was dressed with collodion, binding the auricle to the side of the head by a gauze bandage. At the end of the fifth day the wound had healed, but the bandage was worn for

eight days longer, and by that time the ends of the cartilage had united. The operation had been done two months ago, and at the present time the extra fold of skin left after the operation had nearly disappeared. He was opposed to making an anterior as well as a posterior incision.

Dr. J. F. McKERNON, of New York City, said that he had seen a very similar operation done ten years ago by Dr. George Abbott, of that city, except that three sections of the cartilage had been taken out without affecting the skin anteriorly at all. The result had been very good. Within the last three years he had seen another case also yielding a good result.

Dr. POOLEY said that he felt sure that any operation which did not involve a considerable dissection of the cartilage would not succeed, but whether one should go through the entire concha or not was a question.

(To be continued.)

Abstracts.

NOSE, Etc.

Halsted, T. H. (Syracuse, N.Y.).—*Empyema of the Right Maxillary, Ethmoidal, and Sphenoidal Sinuses, with Sudden Blindness of the Left Eye; Operation; Recovery of Sight.* "Arch. of Otol.," vol. xxx., No. 3.

A lady, aged twenty-one, who had previously suffered from an offensive purulent discharge from the right nostril, became suddenly blind in the left eye. The left pupil was widely dilated, but contracted when light was thrown into the right eye. The right eye was unaffected, and there was a temperature of 99.4° F. In the nose there was found a general deviation of the septum to the right side, which, along with the swollen inferior turbinated body, concealed the middle one. When, however, the parts were made clearer by means of cocaine, there was found to be pus coming from under the middle turbinate.

Transillumination showed the right maxillary sinus to be completely dark. The nose on the left side was almost normal. The writer made a diagnosis of empyema of the right maxillary antrum, the ethmoidal and sphenoidal sinuses. He attributed the sudden occurrence of blindness of the opposite eye to the giving way of the septum between the two sphenoidal sinuses, pus finding its way into the left one and pressing on the optic nerve. (It seems difficult to understand why it should not first have affected the right optic nerve, but presumably the bony plate intervening between the sphenoidal sinus and the left optic foramen was thinner than on the right side, or possibly dehiscient.) Dr. Halsted removed the anterior portion of the right middle turbinal, and scraped through into the posterior ethmoidal and ultimately the

sphenoidal cells, all at one operation. There was a considerable amount of bleeding, so that the immediate result was not quite recognisable; but relief was obtained, and subsequently he removed the posterior part of the middle turbinal and enlarged his opening into the sphenoidal sinus, washing it out, and thereby bringing about a remarkable degree of improvement in the vision of the left eye. He answers the possible (and not improbable) criticism of his methods, to the effect that he might have operated through the left nasal passage, which was almost abnormally wide, by stating that he objected to removal of the normal left middle turbinal, which would mean the "wounding of the ethmoid, and the probable subsequent necrosis of this normal structure." He appeals to the subsequent history of the case, which appears to have borne out the wisdom of the course he pursued.

Dundas Grant.

Lewy (Berlin).—*An Unexpected Discovery in the Nerves of the Nasal Mucous Membrane in Nasal Reflex Neurosis*. "Arch. f. Laryngologie und Rhinologie," Bd. 12, Heft 1.

In two cases of marked nasal reflex neurosis, due to hypertrophy of the inferior turbinates, the hypertrophied tissue showed on removal an extraordinary number of thickened nerve branches running under the free surface. The author would attribute the increase of reflex irritability to this increase of nerve-supply, and not to change in the nerves themselves. As this has not been described before, he would like further investigation to be carried out.

Guild.

Mann (Dresden).—*Mucocoele of the Right Ethmoid*. "Münchener Medizinische Wochenschrift," No. 28, 1901.

A patient, thirty-nine years of age, who in his youth had had a head injury, acquired syphilis at nineteen. For two years he had noticed prominence of the right eye and impaired vision. There was at first a normal fundus oculi, but later a choked optic disc and diminution of acuteness of vision. On examination the author found the right eye displaced outwards and forwards, and in the inner canthus an elastic tumour the size of a cherry. The floor of the ethmoidal cells was enlarged downwards and inwards, the mucous membrane pale. The bone was broken through with a probe, and opened out with Hartmann's forceps. The contents were chocolate colour, syrupy, contained no bacteria, but much cholesterin. There was no further secretion from the cyst. The eyeball sunk back in the orbit after the operation, but it projected for a few days on blowing the nose. Vision became normal. The choked disc disappeared. In spite of the history, it seemed to be a congenital cyst. Only eight similar cases have been described.

Guild.

Natier, Marcel (Paris).—"Transactions of the Laryngological Society," Paris, May, 1901.

Mention is made of cases of false adenoids in neurotic children, giving rise to the usual symptoms of post-nasal adenoids, which were cured by suitable general treatment, accompanied by certain methodical breathing exercises. The author warns against operative treatment, either in nose or naso-pharynx, in such cases.

Anthony McCall.

Prota, Dr. G. (Naples).—Two Cases of Carcinoma of the Ethmoidal Cells. "Archiv. Ital. di Laringologia," Naples, April, 1901.

The author gives an account of the normal anatomy of the ethmoid and the displacements produced in surrounding structures, especially the eyes, varying with the point of origin and direction of growth of ethmoidal neoplasms.

The symptoms of an ethmoidal tumour vary, as it is limited to the periphery, or arises within the sinuses, or as the growth is still limited to the ethmoid or has already invaded the orbit and adjacent cavities.

Usually from the first there are pain, increased nasal secretion, sense of local heat, cephalalgia, epistaxis, etc., symptoms common to many intranasal affections. Later these become more intense and changes take place in the walls. As the *lamina papyracea* which forms so large a part of the inner wall of the orbit is the most slender boundary, it is the first to give way and to be pressed upon the eyeball, so that the latter is thrust forwards and outwards. In the nasal fossa the tumour may invade the middle meatus with deviation or destruction of the middle turbinal.

At a more advanced stage there may be more or less complete invasion of the orbital cavity with exophthalmos and ultimate destruction of the eye and proliferation in the frontal and sphenoidal sinuses. complete occlusion of the corresponding nasal fossa with destruction of the septum and projection of the tumour in the naso-pharynx. Later, diffusion to the ethmoidal cells of the opposite side and finally to the base of the cranium with the usual meningeal phenomena.

The nature of the tumour will be confirmed by the removal and microscopic examination of small pieces.

On account of the delicacy of the *lamina papyracea* and of the ethmoidal cells a cyst may produce pressure in the eyeball, as in the cases of Zuckerkandl and Bayer, and in that of Pinard,¹ in which the diagnosis of encephalocele was disproved at the moment of intervention. Strazza² has reported a cystic tumour of the ethmoid in a girl of twenty, which had compressed the orbit and nasal fossa.

The diagnosis of a tumour of the ethmoidal cells is not always easy, especially at the beginning, when the tumour is confined to the mass of the ethmoid, since the only symptoms are the fronto-occipital pain and an increase of secretion in the middle meatus. It is only when there are ocular disturbances together with distinct objective rhinoscopic evidences that we can suspect a neoplasm. These tumours are capable of developing at a given moment towards the orbit with more or less rapidity. There are also cases of malignant growths of the inner angle of the eye which invade the frontal sinuses and the ethmoidal cells. In these the history and the primary seat of the tumour enable us to make the diagnosis.

Treatment consists in the removal of the growth, either through the nasal fossa or by external operation. The author believes, however, that one may interfere only when the tumour is still of small size, and that it can be removed through the nasal fossa, as in this way hæmorrhage can best be controlled.

James Donelan.

¹ Quoted by Brisson "Études des Tumeurs des Sinus de la Face," *Archiv. Provinc. de Chirurg.*, vol. ix., n. 12, 1900.

² *Bolletino*, 1892.

Rudloff, Dr. P. (Wiesbaden).—*Adenoid Operation on the Pendent Head under General Anæsthesia.* "Arch. of Otol.," vol. xxx., No. 3.

The writer uses Boecker's ring-knife and Hartmann's for Rosenmüller's fossæ. He refers to the proximity of the internal carotid to Rosenmüller's fossa, and quotes the fatal case described by Schmiegelow. He calls attention to the occasional projection of the atlas, and enumerates it among the indications for the adoption of the hanging-head posture during adenoid operation. (We confess to feeling a difficulty in following him in this respect, as the hanging head would seem to exaggerate rather than diminish this obstruction, whereas pulling the head directly upwards in a line with the vertebræ, and bending it if anything slightly forwards rather than backwards, would straighten the cervical portion of the spinal column, and bring the vault of the pharynx more readily within reach.—D. G.)

Dundas Grant.

LARYNX.

Brownlee, H. F.—*Foreign Body lodged for Four Months in the Trachea of a Thirteen-months-old Child.* "Med. Record," July 6, 1901.

The child was at first supposed to be suffering from croup. Gradually dyspnoea became more marked, and called for tracheotomy. This was performed under chloroform anæsthesia. The foreign body proved to be a flake of coal, about $\frac{1}{4}$ inch in width and $\frac{1}{2}$ inch in length, and of about the thickness of a finger-nail. Inflammation around the foreign body had suddenly and markedly increased the stenosis. Rapid recovery followed the tracheotomy.

W. Milligan.

Killian (Freiburg).—*Hysteria in Reference to the Larynx.* "Münchener Medicinische Wochenschrift," No. 26, 1901.

His investigations tend to show that the appearance of paresis of the vocal cords, as seen in hysterical dysphonia and aphonia, should not be described as a muscle paralysis, as the muscles are not persistently paralyzed; the appearance is only the peripheral expression of a deficiency in cerebral will movement. This idea has already been expressed by Rosenbach, who talks of "voice paralysis," not vocal cord paralysis. All the hysterical appearances—even the unusual form of spasm movements—can be produced at pleasure by healthy persons, only it requires long practice.

Guild.

Krebs.—*Derangement of Voice after Injury to the Cervical Sympathetic.* "Münchener Medicinische Wochenschrift," No. 27, 1901.

During an operation for the removal of an angioma under the angle of the jaw the sympathetic was injured. There was ptosis, anomalous salivary secretion, and other symptoms. The voice was also impaired, although the recurrent nerve was not damaged. Krebs states that the laryngoscope showed no change in the thyro-arytenoid muscle, unless the recurrent nerve is affected; but delicate tests of the voice showed that a part of the muscle not supplied by the recurrent was paralyzed.

Guild.

Natier and Rousselot.—*Cases of Nodular Laryngitis.*—"Transactions of the Laryngological Society," Paris, May, 1901.

These cases are not always singers, and if they are, they must be inferior artistes who fatigue the vocal cords. A general neurotic con-

dition, with defective respiratory movements, are the chief causes of nodular laryngitis. Suitable constitutional treatment and exercises in breathing generally cure the case without local treatment.

Anthony McCall.

Rivière and Vincent.—*Tracheal Injection*. "La Médecine Moderne," No. 2, 1901.

In chest cases the authors point out that this method of treatment saves the stomach from irritation. This idea is not a recent one; it was first used by Garel in 1888, and exploited by Louis Dor in 1890. More recently M. Mendel has studied the question, and believes that by following the curve of the base of the tongue and injecting on inspiration a laryngoscope is not necessary. The substances used were menthol, cinnamon, eucalyptus, etc., and the best results were gained in the cases suffering from tuberculous disease.

Bronchitis generally objected, and no opinion can be formed as to its efficacy in such cases. The excipient used was oil; water caused cough, and glycerine was not used, for fear of hæmorrhage (experiments on rabbits having shown such results).

Anthony McCall.

Trautmann, Gottfried.—*New Sterile Laryngeal Mirror*. "Münchener Medicinische Wochenschrift," No. 25, 1901.

This paper describes the various forms of laryngeal mirrors which have been invented capable of being disinfected. The author's is composed of three parts, which can be taken asunder. The mirror can be obtained from Beck and Plazotta, Munich.

Guild.

E A R.

Brandegge, W. P. (New York).—*Tympanic Vertigo due to Obstruction within the Eustachian Tube*. "Arch. of Otol.," vol. xxx., No. 3.

The writer considers tympanic vertigo really a labyrinthine disease, although the removable cause is stricture of the Eustachian tube. The best way of restoring the patency is, to his mind, electrolysis, following the method devised by Ducloux of New York. He narrates numerous cases in which vertigo was due entirely to tubal occlusion, the results speaking very highly for the method of treatment which he employs. (The reviewer has found dilatation of the tube by means of Weber-Liel's intratympanic catheter most efficacious, acting on the principle of "vital" instead of electrolytic dilatation.—D. G.)

Dundas Grant.

Connal.—*Furunculosis of the External Auditory Canal*. "Glasgow Medical Journal," July, 1901.

This paper gives the differential diagnosis, pathology and treatment of furunculosis. Early incision is recommended. One case of co-incident hyperæmia of the labyrinth is described, where deafness was permanent. The paper is illustrated with five photographs. There were 2½ per cent. of cases of furuncle in the Glasgow Ear Hospital in 5,653 cases. In 70 per cent. it was the sole lesion, in the others it was associated with notably chronic purulent inflammation of the middle ear, less frequently with ceruminous collections and eczema.

Guild.

Frutiger, A. (Basel).—*Functional Significance of the Round Window*.
 "Arch. of Otol.," vol. xxx., No. 3.

Normally, the author considers that the round window plays a very small direct part in audition; it may, however, be of use for the hearing of the higher tones of the scale. In disease, when the lower tone limit is much reduced (as in cases of stapedio-vestibular arthritis), hearing for bass tones can be improved by applying a tampon to the membrane of the round window. The physiological use of the round window under normal conditions is, in all probability (chiefly in conjunction with the two aqueducts), to regulate the variations in tension of the labyrinthine fluids, as in case of wave movement produced in the labyrinthine fluids, or oscillations of the chain of ossicles produced by tones or by direct or indirect force, thus protecting the delicate structures of the labyrinth from the effects of loud sounds or from physical shock.

(No doubt, also, the yielding of the round window diminishes the effect of such sudden stimuli of the vestibular nerve as might give rise to vertigo, and its healthy condition is probably one of the essentials for easy equilibrium.—D. G.) Dundas Grant.

Hopkins, G. W.—*Superheated Air in the Therapeutics of Chronic Catarrhal Otitis Media*. "Med. Record," June 1, 1901.

The author has found the employment of superheated air useful in cases of chronic dry catarrhal otitis media. The method he advocates is as follows: The ear is thoroughly cleansed with alcohol for several days before the treatment is begun. The patient is seated upon a comfortable chair, and the external meatus is packed with narrow strips of dry gauze, and a large pad of dry gauze is placed over the ear. The ear is then covered with a canvas-sleeve hot-air conductor, and a current of hot air is sent into the canal at a temperature of 400° F. This high temperature is, as a rule, easily borne, although headache may result. A dose of codeine, as a rule, however, relieves the headache promptly. Following the hot-air treatment, the Eustachian tube is inflated with a warm stimulating vapour from a nebulizer, whilst vibratory massage with a nebulizer is also employed. Treatment is applied on alternate days for several weeks.

The method is contra-indicated in cases of (1) arterio-sclerosis; (2) serous effusion into the tympanum; (3) perforations.

The gauze packing within and over the ear takes up all moisture as rapidly as formed, preventing any burning of the skin, and making the application of very high temperatures easy and without discomfort.

W. Milligan.

Keller.—*Newer Pathological Investigations in so-called Middle-ear Sclerosis*. "Münchener Medicinische Wochenschrift," No. 30, 1901.

In the greater number of cases of chronic dry middle-ear catarrh the only macroscopic appearance is osseous ankylosis, between the stapes and fenestra ovalis. Formerly this was thought to be due to a chronic periosteal process; later investigations by Politzer, Bezold, Liebermann, have shown that the process consists in a metamorphosis of the compact osseous labyrinth capsule into spongy bone, in which the periosteum takes no part. This process is not limited to the fenestra ovalis, although this is its favourite seat, but is found distributed in small

definite spots all over the labyrinthine capsule. It commences in the Haversian canals, which are widened out towards the labyrinth, and are filled with blood and lymph vessels along with cells, which as osteoblasts produce absorption of bone in the form of Howship's lacunæ, as osteoblasts cause the formation of new spongy bone. The course is throughout chronic, often lasting a lifetime. He refers the nature of this peculiar affection to the supposition of Liebermann that it probably consists in an additional development of osseous points in the preformed cartilaginous labyrinthine capsule, and mentions the slight prospect of any effectual therapeutical treatment. *Guild.*

Pyle, Edwin W. (Jersey City).—*A Correlation of One Hundred Successive Mastoid Operations.* "Arch. of Otol.," vol. xxx., No. 3.;

Forty-eight were in children, fifty-two in adults. The former furnished three times as many acute cases as the adults; the latter, on the other hand, three times as many chronic cases as the children. The forty-five acute cases furnished 33 per cent. of the intracranial complications, mostly in children, with recoveries in all; the fifty-five chronic cases furnished 66 per cent. of the intracranial complications, four dying. Peculiar to children were thirty-four subperiosteal accumulations, twenty-five cortical perforations, and nine cases in which pus had escaped through the Rivinian fissure only; while three subperiosteal fluctuations beneath the temporal fascia, seven Stäcke, four Bezold, and two brain-abscess operations, were peculiar to adults. There were five cases of sinus thrombosis, occurring in one adult, two adolescents, and two children; twenty-two extradural abscesses, six in children, following exanthemata, and sixteen in adults, due to chronic influences. The unreliability of symptoms was illustrated in several cases: thus, in four a discharge from the external meatus seemed so profuse as to be more than the tympanic surface could secrete, and yet the operation revealed no source of supply in the antrum or mastoid cells. Again, in three cases there was no tenderness over the tip of the mastoid, and yet the tip-cell only was filled with pus. In nine cases there was no discharge of pus from the canal. In one of these pain, tenderness, and œdema indicated operation, which revealed an epidural abscess and a Bezold's perforation; in another hemicrania and inability to sleep were noteworthy symptoms, and operation disclosed extensive necrosis of the groove and a perisinuous abscess; in another the cicatricial membrana tympani was retracted, the short process prominent, with tenderness and fluctuation over the mastoid, requiring a radical operation to remove cholesteatomatous products. In a case of acute disease which had only lasted twelve days the groove for the sinus was carious to a large extent; there were abundant extradural granulations, and the mastoid process was one broken-down mass. On the other hand, in a case with mastoid tenderness, a history of chronic discharge, three chills, temperature ranging from 102 to subnormal, with stupor, there were found on operation no pus, no sinus complication, and no brain abscess, everything being negative and a good recovery taking place.

Regarding the sinus, the groove was found in four cases to approach to within from $\frac{1}{8}$ inch to $\frac{1}{4}$ inch of the posterior wall of the meatus, while in two the entrance to the antrum was found only by going up over the groove. Alarming respiratory movements of the sinus were observed in one case, and although this symptom is supposed to indicate the presence of a clot between the point of aspiration and the

torcula, or the admission of aerial embolism, the sinus had in this case not been wounded, and there was no subsequent history to indicate the presence of any clot. Four cases out of five of phlebitic thrombosis verified the observation that when the sinus is surrounded by foul pus a venous clot may be anticipated.

Several cases seemed to show that a quieting down of the symptoms under cold was not lasting. In two cases in which operation disclosed an extensive osteoporosis, with perisinuous granulations, there had been little or no fever, the only signs being a tenderness in the post-cervical region in one case, and in another continued hemicrania, with mastoid œdema and cerebellar tenderness.

Among other elements in the treatment, the writer speaks very highly of irrigation with hot sterilized water, using from 1 to 2 quarts at a time by means of a douche sufficiently elevated to give pressure. When this was used subsequent to the dressing period, soft granulations disappeared, and dermatization took place rapidly. He notes particularly that in one radical operation, complicated with a recurring foul cholesteatoma, irrigation as above described secured most gratifying results, after a long series of patient experimentations with other measures. (Our readers may recollect a very vigorous advocacy of irrigation made by Mr. Faulder White.—D. G.) *Dundas Grant.*

Richards, W. G. *A Case of Cerebellar Abscess; Operation; Recovery.*
"Arch. of Otol.," vol. xxx., No. 3.

A boy, aged six and a half years, had had a discharge from his left ear since he was four months old, and had measles eleven months before coming under observation. His present illness had begun seven days before admission, with pain in the left ear and cessation of the discharge, his temperature having varied during the week between 100° and 102°. He was in poor condition, drowsy, and lay curled up on his right side, with his head firmly rotated and bent over to the left side. There was no discharge from the ear, but slight tenderness over the mastoid process. Under warm irrigations the temperature and pain decreased during the next few days, when a macerated earwig was washed out of the meatus, and the discharge became more abundant. He became worse; his temperature rose to 102.4° F. on one evening, and next morning fell to 97° F., never again rising above 98.4°. He remained fretful and drowsy, and got gradually thinner, and when he lay in bed kept his knees drawn up and his eyes wide open, the upper lids not falling as low as the upper edge of the cornea, the pulse being normal and slight photophobia present. Later he had a difficulty in grasping an object or in touching the tip of his nose with the index-finger of either hand; the pulse began to intermit one beat in five. The writer therefore decided to operate, and, by means of an exploring syringe thrust through the dura mater about one inch and a half into the cerebellum, was able to withdraw 2 drachms of "laudable" pus. He then incised the dura mater, inserting an indiarubber tube $\frac{1}{4}$ inch in diameter; the tube was made to emerge from a hole made for it in the skin flap, and then the flap was sewn in position with silkworm gut. Rapid recovery took place. (The author was fortunate in being able to withdraw pus by means of an exploring syringe. The disease in this most gratifying case would appear to have formed at the time of the evening rise of temperature, and was, therefore, acute rather than chronic.—D. G.) *Dundas Grant.*

Swain, Henry L., (New Haven, Conn.).—*A Case of Tuberculosis of the Ear, with Autopsy.* "Arch. of Otol.," vol. xxx., No. 3.

The patient, a man aged thirty-seven, had a discharge from the left ear for six months. (There is no mention that he had pain at the onset of the disease, which was attributed to cold.) Later there was pain in the ear and on the side of the head. There was evidence of crepitation in the right lung, and a purulent discharge from a sinus in the left testicle, obviously tuberculous. The author attributed the diseases to secondary general infection from the testicle, and abstained from operation on the petrous bone. The patient died from inanition, and on post-mortem examination there was found extensive tuberculous disease of the petrous bone, but with a considerable fibroid thickening on the upper surface, protecting the cerebral membranes from infection. This confirmed him in the justness of his decision to avoid operation, which would probably have opened the way for infection of these structures. (It will be remembered that Professor Politzer discountenances operation for tuberculous disease of the petrous bone coming on in the course of a well-established pulmonary tuberculosis, whereas he advises operation when signs of pulmonary tuberculosis develop in the course of a long-standing suppurative inflammation of the middle ear.—D. G.)

Dundas Grant.

THERAPEUTICS.

Gleason, E. B.—*Nitrate of Silver and other Salts of Silver in the Treatment of Inflammation of the Mucous Membrane of the Upper Respiratory Tract.* "Therapeutic Gazette," March 15, 1901.

When a solution of nitrate of silver is painted on a mucous surface it is decomposed, and organic compounds are formed. These are further decomposed, with the final result of the formation of argentic oxide. Nitrate of silver is an irritant; the organic compounds, however, are sedative. Whether the irritant or sedative effects of nitrate of silver predominate depends largely on the character of the epithelial layer of the mucous membrane to which it is applied. If a 60-grain solution be applied to the posterior wall of the pharynx it is extremely irritating, but if applied to an inflamed tonsil it is followed by great relief and comfort. Such a solution applied twice or thrice daily for two or three days will in a large proportion of cases abort a phlegmonous tonsillitis, and will be equally successful in follicular tonsillitis if the crypts are first freed of pseudo-membrane by applying a solution of peroxide of hydrogen.

Middlemass Hunt.

Somers, Lewis S.—*The Use of Suprarenal Extract in Diseases of the Middle Ear.* "Therapeutic Gazette," December 15, 1900.

Somers finds the following solution of suprarenal extract the most suitable for use in middle-ear disease: Suprarenal gr. xx, phenic acid gr. ii, β eucaine hydrochlorate gr. v, aqua dest. \mathfrak{z} ii. Phenic acid alone in this amount will preserve the solution for several months, but this action is greatly enhanced by the eucaine. He recommends the above solution as a hæmostatic and anæsthetic in aural operations, such as removal of granulations, or in operative procedures in the tympanic membrane. When granulations are present in the canal or

middle ear, the solution causes them to shrink, and if they are small and soft a few applications will bring about their entire disappearance. In chronic suppurative otitis it diminishes secretion through its tonic action in vascular tissue, and also aids in the more rapid healing of the parts. In acute inflammation of the tympanum it gives temporary relief, and if repeated as required will frequently abort an attack. At the same time the solution should be freely applied to the nose and naso-pharynx by means of a spray. If the case is seen after suppuration has taken place, and there is a perforation in the membrane, the solution should be instilled twice daily after cleansing. It will shorten the course of suppuration by aiding free draining through reducing the swelling of the mucous membrane, and rendering the Eustachian tubes patent. In cases of small perforation in Shrapnell's membrane it should not be employed. *Middlemass Hunt.*

Somers, Lewis S.—*The Use of Citric Acid for the Relief of Ozæna in Atrophic Rhinitis.* "Therapeutic Gazette," March 15, 1900.

Citric acid was recommended by Hamen in 1899 as of use in removing the fetor of ozæna. The writer has made a considerable trial of this drug, and finds that, though it exercises no direct action on the morbid tissue, it can be relied on to entirely remove fetor, so long as its regular use is continued. After cleansing the nose of all crusts, a powder, composed of citric acid 25 parts, and sugar of milk 75 parts, is blown into the nostrils. This treatment the patient is instructed to carry out three times a day. The amount of citric acid may be increased to 50 per cent. if not too irritating. Care must be taken that the powder does not enter the pharynx or larynx, as pain is immediately produced, and in the latter case spasm of the glottis from the intense irritation. *Middlemass Hunt.*

REVIEW.

Diseases of the Upper Respiratory Tract: The Nose, Pharynx, and Larynx. P. Watson Williams, M.D., London. J. Wright and Co., Bristol.

This excellent text-book has met with well-merited success, and the present work, which constitutes the fourth edition, has been produced in two volumes, the first part being descriptive matter, enriched by many good illustrations; the second an atlas of plates illustrating the anatomy, physiology, bacteriology, and clinical aspects of our speciality.

The author, after dealing with the anatomy, physiology, methods of examination, and general semeiology, discusses the affections of the whole upper respiratory tract in a practical yet thoroughly scientific manner. This edition is considerably increased in size, and greater care has been paid to diphtheria and diseases of the nasal accessory sinuses. He states: "The text has been revised throughout, largely rewritten, and brought up to date without departing from the original design—viz., a simple, concise, and thoroughly practical text-book on a scientific basis, affording information on every point likely to come within the needs of the practitioner and student of laryngology." The profession will readily admit that Dr. Williams has thoroughly suc-

ceeded, and his text-book is one to be confidently recommended, while the author should be heartily congratulated upon its production.

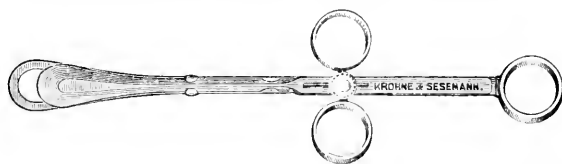
Dr. Watson Williams, in his second volume, has introduced a new feature by way of stereoscopic photographic illustrations, which should be of great advantage. It is difficult to understand why such an old art, thoroughly worked out by Wheatson long ago, has been so much neglected in medical literature. The ordinary photograph gives one an idea of height and breadth, but the third dimension in space must be suggested if the objects are to be presented to us in photography after the manner in which they are seen by the human eye. A small stereoscope is neatly and cleverly introduced in the cover, although it should be here remarked that, with a little practice, many observers can train the unaided eyes, after a slight experience, to see such photographs stereoscopically.

The publishers have done their work, as before, in a most satisfactory way, and the book, as now produced, will be welcomed not only by those seeking an introduction to this special branch of surgery, but also by advanced students, practitioners, and teachers.

NEW INSTRUMENT.

Guillotine for Removal of Enlargements of the Posterior Extremity of the Inferior Turbinate Body.

MESSRS. KROHNE AND SESEMANN, 6, Duke Street, Manchester Square, W., send us the accompanying sketch. The instrument was made for



Mr. Lake, who writes that it has given him complete satisfaction. The price is 25s.

APPOINTMENT.

THE Council of King's College have elected Dr. StClair Thomson, M.R.C.P. Lond., F.R.C.S. Eng., assistant physician for diseases of the throat in King's College Hospital.

BOOKS RECEIVED.

Johns Hopkins Hospital Reports. Vols. viii., ix. and x. The Johns Hopkins Press, Baltimore, 1900-1901.

Charles E. de M. Sajous, M.D.—*Annual and Analytical Cyclopædia of Practical Medicine.* Vol. vi.

Richard Lake, F.R.C.S.—*International Directory of Laryngologists and Otolologists.* Second Edition. Rebman, Limited, London, 1901.

Jobson Horne, M.D.—*Descriptive Catalogue of the Museum of the British Congress on Tuberculosis,* 1901.

THE
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**THE PRINCIPLES OF TREATMENT OF TUBERCULOUS
LARYNGITIS.***

BY STCLAIR THOMSON, M.D., M.R.C.P. LOND., F.R.C.S. ENG.;

Assistant Physician for Diseases of the Throat in King's College Hospital;
Physician to the Throat Hospital, Golden Square; Surgeon
to the Royal Ear Hospital, London.

THE statistics of the pathological department of the Brompton Consumption Hospital show that the larynx is affected in over 50 per cent. of the cases which succumb to pulmonary tuberculosis. As 70,000 persons die annually in the United Kingdom from this disease, at least 35,000 of them would have claimed our help in diminishing their sufferings from tuberculosis of the larynx. The statistics of averages warrant us in saying that there are in this country at least 75,000 who require our aid in arresting or easing the progress of tuberculosis of the larynx. The widespread character of this disease is therefore in itself a claim upon our attention; and when we remember the long-drawn-out sufferings which may accompany it, and the youth of the majority of its victims, our humanity is keenly stimulated on their behalf.

The moment seems opportune for briefly reviewing the principles which may guide us in the treatment of tuberculosis of the larynx, for not only must we readjust older views to the modern light which has come upon the scene, but such an occasion as the present Congress rarely occurs for supplementing the experience of the laryngologist by that of the general physician and the patho-

* A paper read before the British Congress on Tuberculosis, July, 1901.

logist. That this review is very necessary has been impressed upon me by the perusal of a large number of the most recent textbooks on laryngology, few of which contain any reference to the treatment of laryngeal tuberculosis by modern hygienic methods. The frame of mind of many laryngologists is reflected in a recent paper by Dr. Johann Sendziak, in which he makes mention of the "rational—that is, the surgical—treatment"* of this disease, as if any method of treatment short of surgical was not worthy of being denominated as reasonable, and as if hygiene and rest were of no avail, and the *vis medicatrix nature* a myth.

Our principles of treatment are guided by clinical experience, but, when available, are based on pathological knowledge. The pathology of tuberculous laryngitis is rendered difficult by the complexity of the anatomical arrangement of the larynx. The varieties in the structure of the mucous membrane and submucosa, the functions it performs, the proximity of tendons, ligaments, muscles, cartilages, and joints, the disposition of lymphatics and vessels, the occasional movements required in deglutition and the constant rhythmic action of the vocal cords in respiration, are all points which have to be taken into consideration. While the morbid histology of tuberculosis can be so readily studied in the larynx that Virchow recommended it as one of the best opportunities for observing the process, yet the complicated nature of the larynx renders an investigation of the anatomical conditions an equally important part of our task.

Tuberculous affections of the larynx have been classified under four categories :

- (a) Superficial ulceration commencing from the surface ;
- (b) Infiltration, followed by
- (c) Ulceration ; and
- (d) Tumour formation, or tuberculoma.

This classification is, of course, somewhat arbitrary. It is seldom that two or more of these forms are not combined when a case first presents itself. As there is little doubt that in the large majority of cases infiltration precedes every other process, it is deserving of particular study as to its situation. It commences in the subepithelial layer, and when it takes place in regions where the mucous membrane is closely adherent to deeper tissue, and particularly to cartilage—as in the epiglottis, vocal processes, and arytenoids—it is very apt to spread to deeper parts, leading to perichondritis and necrosis of cartilage. Although the mucous membrane of the vocal cords is closely attached to the underlying

* *Journal of Laryngology*, May, 1901.

tissue, the absence of subjacent cartilage renders infection of this part of the larynx a less rapidly destructive process. On the ventricular bands there is still less danger of immediate spread to adjacent cartilage.

Of all the various situations in the larynx the most frequently attacked is that of the arytenoids and the neighbouring inter-arytenoid space. Lake found this part affected twice as often as the vocal cords, and three times as often as the epiglottis and ventricular bands.*

In the early stages of such cases the vocal cords not only show a want of tension, but careful inspection will show that their movements are impaired both in adduction and abduction. This tendency to remain in the natural cadaveric position (*i.e.*, the position of rest), the inter-arytenoid thickening, and the consequent dysphonia, have inclined W. Fowler to look upon tubercular laryngitis as chiefly a joint disease. He supports his view by the record of between forty and fifty autopsies of tubercular laryngitis, and as his knowledge as a laryngologist helped to render these examinations very complete, I think the results deserve careful consideration. "In every case," he writes, "the greatest seat of the mischief was in the immediate neighbourhood of the crico-arytenoid joint, and the joint itself was always implicated. The deepest part of the ulcer, when ulceration existed, was always immediately in front of the joint, and the joint not only communicated with the floor of the ulcer, but was also more or less disorganized. In many cases the arytenoid was a loose piece of dead cartilage."†

The pathology of laryngeal tuberculosis requires still further study, but in any case we seem warranted in assuming that, as in other parts of the body, the first process is one of infiltration. Universal clinical experience and pathological observations concord in establishing the fact that in a large majority of cases this infiltration first takes place in or about the arytenoid joints. Other parts are occasionally attacked primarily; the epiglottis less frequently than any other.

Leaving now for a moment the pathological aspect of the subject, let us consider it from the result of treatment. Writing in 1880, Morell Mackenzie observed, "It is not certain that any cases ever recover," and he states that he only knew of four in which he had reason to believe that the disease was entirely arrested.‡

* "Laryngeal Phthisis," London, 1901.

† *Intercolonial Medical Journal of Australasia*, October 20, 1898.

‡ "Diseases of the Throat and Nose," vol. i., p. 383.

This view has been somewhat modified in the succeeding twenty-one years by the work of Moritz Schmidt, Krause, Heryng, and others. Their work has, unfortunately, diverted attention too exclusively to the possibility of exterminating the disease from the larynx by knife and caustic. Recoveries have, indeed, been claimed under various treatments, but we must remember that arrest will take place in the larynx, as elsewhere, without any local treatment whatever. When reaction and resistance of neighbouring tissues are sufficiently vigorous, the advance of infection is checked by the fibroid change, which is the natural and desirable process of cure. In many cases the recovery is deceptive; partial cicatrization of an ulcer may take place in one part, or retrogression of an infiltration occur in the region visible in the mirror, while the process may be spreading in the depths of the tissues, or in such parts as the ventricles of Morgagni and the subglottic region. Besides, the foreshortened image we see in the mirror is a very unsatisfactory picture of the posterior laryngeal wall—the most important region in tuberculosis—and is always inadequate as regards the parts lying below the cords. Everyone who performs a laryngo-fissure, or opens a larynx on the post-mortem table, is prepared to find disease invariably more extensive than it appeared in the laryngoscope.

But what remains to us of all the various methods of local treatment which have from time to time been vaunted as curative of laryngeal tuberculosis? Their very number is eloquent of their inefficiency, and although some cases may have recovered under treatment, and many may have been locally relieved, yet we need hardly stop to consider whether the various sprays, pigments, insufflations, submucous injections, or intratracheal injections, had more than an alleviative effect, or whether, in the majority of cases, the irritation and reaction they produced did not far counterbalance any possibility of good.

None of the numerous methods which have from time to time secured some attention have ever appeared to me sufficiently rational to make them worthy of an extended trial. On the other hand, their disadvantages and uncertainties were only too apparent. I have therefore been compelled to appeal to the experience of others on this matter, and in doing so will only refer to what we may term the lactic acid and the surgical methods of treatment.

Applications of lactic acid to the tuberculous larynx have obtained such a vogue in the last ten or twelve years that the method has been applied *à tort et à travers*, practitioners in many cases persevering with it while the patient was being prevented, through its effects, from improving generally, or even steadily deteriorating

in health. In many cases I have known of its being applied over unbroken mucous membrane, covering deep infiltrations, or evident perichondritis, the surgeon apparently not stopping to ask himself how this superficial caustic could affect these deep processes, or do more than distress the patient and hurry on the progress of the disease. And now Freudenthal, who used it freely, states frankly that "it ought to be dispensed with as antiquated and barbarous torture of the patients."*

In 1899 Freudenthal subjected twenty-nine cases to surgical treatment without being able to record one single cure.† He then treated his cases of tuberculous laryngitis without curettage, and after a year's observations he wrote: "I believe my patients are just as well and perhaps better off than they would have been with the operation."‡

The extensive and trustworthy experience of Jonathan Wright has led him to the following statement: "The permanent radical cure of the local lesion of tubercular laryngitis is not materially hastened by the various methods of treatment in any but an insignificant number of cases."

That a certain number of apparently permanent cures have been effected is undoubted. I have myself verified such a case, both before and after treatment, which was shown by Dr. Lack to the Laryngological Society of London,§ but the chief point to realize is that even the most enthusiastic supporters of surgical treatment of tuberculous laryngitis admit themselves that the majority of cases are unsuitable even for attempting operative measures. We must also remember that in this small minority of cases the method is painful and distressing; it cannot but react unfavourably on any general condition; and the result is extremely doubtful.

It seems to me that the treatment of the last decade has been based too exclusively on the bacillus as the one and only etiological factor, and that due regard has not been given to more general considerations.

In indicating the slight and unsatisfactory results which have been gained from the direct treatment of laryngeal tuberculosis, I must be understood as only deprecating much of the treatment in so far as it has been regarded as effecting a local cure. Where the progress of the disease—in the lungs and in the larynx—is not stimulated by local interference, then many measures are available

* *Journ. of the Amer. Med. Assoc.*, March 16, 1901.

† *Philadelphia Med. Journ.*, March 25, 1899.

‡ *Medical News*, New York, January 19, 1901.

§ "Trans. Laryngol. Soc.," London.

for symptomatic treatment, and we are well equipped nowadays for soothing laryngeal irritation and cough, easing pain, facilitating swallowing, and thus contributing to the general treatment and the possibility of cure.

We must look elsewhere at present than to surgical measures for a prospect of progress in the treatment of tuberculosis of the larynx. This progress is ready to hand in the making of an earlier diagnosis of local infection. The present is hardly the occasion, even if time permitted, for me to enlarge on the symptoms of the early diagnosis of laryngeal tuberculosis. Besides, the most detailed description of the laryngoscopic appearances could hardly portray a condition which would be recognised by any but an expert, so slight are the early changes and so variously are they combined. "In general," says Grünwald, "it may be said that it is impossible to teach anyone theoretically how to make a diagnosis from the picture in any given case, because, in order to arrive at a decision, one must first learn the development of many successive pictures by long personal observation. Not the picture of to-day, but that of yesterday, and that of to-morrow, must decide for or against laryngeal tuberculosis."^{*} But it is not only from the laryngoscopic appearances that a diagnosis of early local tubercular infiltration, or of even pre-tubercular laryngitis, can be made. We must make a careful and thorough examination of the entire body, and pay careful attention to such symptoms as anæmia, anorexia, dyspepsia, loss of weight and strength, hurried pulse, and even rise of temperature. The previous history of the patient, particularly in regard to hæmoptysis and pleurisy, must be taken into consideration, and the family history should not be forgotten. There are many other indications of early tuberculosis, and these, together with the indications for the employment of tuberculin as a diagnostic test, I must at present leave out of consideration. In this way evidence can often be obtained which will complete the diagnosis of a laryngeal condition which might otherwise be treated as a simple catarrh. In the absence of positive confirmatory symptoms and of other adequate explanation of laryngeal symptoms, we must treat suspicious cases by measures that we know now will avert a condition which, once well established, is almost always incurable. In doing this we are but working along the lines and making the same plea for early diagnosis which has been so forcibly advanced in recent years in the subject of pulmonary tuberculosis.

Once the early diagnosis is made, the treatment is exactly the

* "Atlas and Abstract of the Diseases of the Larynx," 1898.

same as that now employed in pulmonary phthisis—the sanatorium treatment in what should practically be the open air, with rest, hygienic surroundings, and good food. To this must be added more or less strict insistence on voice-rest. This is found to be beneficial in many cases, even when the larynx is not affected. It must be much more so in laryngeal cases, when we realize that in the majority of instances the focus starts near or in the crico-arytenoid joints.

The treatment of catarrhal or obstructive affections of the nose and throat, and of any intercurrent conditions of the larynx must, of course, receive careful and suitable treatment, and it is therefore very desirable that those in medical charge of sanatoria should be skilled in practical laryngoscopy. But the important principle to bear in mind is *primum non nocere*, for even a clumsy examination of the throat may produce more irritation and harm than any treatment can counterbalance.

Briefly recapitulated, the principles to bear in mind in tuberculosis of the larynx are as follows:

1. Pathology and clinical experience show that in the majority of cases the focus of infection is near or in the crico-arytenoid joint.

2. Many cases only present themselves at a stage when the possibility of effecting a cure by local measures is quite untenable.

3. The principle of *primum non nocere* should be constantly kept before us, as many measures which have been tried in this affection have only distressed the patient and hastened the disease.

4. In the light of present knowledge and therapeutic resources, the most rational principle is to attempt to make an early diagnosis of the disease while in an incipient stage. Any persistent or suspicious laryngeal catarrh should be treated seriously on even a presumptive diagnosis.

5. Once diagnosed, the patient should be treated on the principles laid down in the modern method of sanatorium treatment.

6. Symptomatic treatment should be directed to an irritative, catarrhal, or obstructive condition of the air-passages.

7. In addition, silence should be enjoined, the disuse of the voice being proportionate to the degree in which the focus of infiltration approaches or interferes with the arytenoid joint.

8. In cases where the situation or extent of disease do not warrant an expectation of complete arrest of the process, treatment should be symptomatic, and in many such cases the sanatorium treatment is uncalled for.

TONSILLOTOMY RASH.

BY WYATT WINGRAVE, M.D.,

Physician and Pathologist, Central London Throat and Ear Hospital.

THE occurrence of a skin eruption following operations, often referred to as "Surgical Rash," is familiar to all of us, but its association with the removal of tonsils and adenoids is perhaps not so widely recognised that a few notes may be of interest.

Recent experiences of several instances prompted a reference to my hospital and private records, which has revealed thirty-four cases in the course of seven years. Although relatively to the large number of operations this is but a small percentage, I feel, from recent experience, that they represent but a portion only of those actually occurring, and that a thorough and systematic inquiry would afford evidence of greater prevalence.

It is the custom at our hospital for all patients who are operated upon in the out-patient department to attend after a week's interval for examination; and in several instances the parent has reported that the child was kept at home because it had a rash which was thought to be "something catching." Subsequent investigation, however, in most cases, proved its innocence of specificity. In other cases the rash was still visible on the patient, and unattended by constitutional symptoms.

Of the thirty-four cases, three were in-patients who developed scarlet fever, while in one diphtheria developed. The remainder were simple non-specific cases.

Character of Rash.—The eruption generally appears on the second or third day, either papular, roseolous, or erythematous in type. It most frequently attacks the neck, chest, and abdomen, sometimes extending to face and extremities. The earliest appearance noted was the day following operation, the latest was the sixth day. Its duration is generally two or three days, but may extend to five days. After reaching its maximum intensity, it rapidly disappears, without desquamation, but is sometimes associated with intense itching.

It may occur at any age. The youngest was fourteen months, and the oldest twenty-three years.

With regard to sex, excluding the specific cases, twenty were females and ten were males.

As a rule there is but slight constitutional disturbance, and the child does not appear to be any the worse. In those cases which I

was able to personally investigate, the temperature was only raised one to two degrees Fahrenheit.

Although the incidence of so innocent a complication in our most common operation may not be unfamiliar to many of us, I am not aware of any published references having been made to the subject. It is, however, a matter of some importance both to us and to the patient, since foreknowledge will help our diagnosis, and prevent any undue precipitancy in forming the graver estimate of its nature.

The occurrence of scarlet fever in three cases and diphtheria in one, has, however, an important practical bearing, insomuch that the removal of actively inflamed tonsils is advocated by many surgeons.*

There are distinct advantages in this practice, since the prominence of an inflamed tonsil affords facilities to the guillotine which disappear on subsidence of the inflammation, and there do not appear to be any serious disadvantages. In the absence of any anæsthetic, the operation certainly may be more painful, but it most effectually relieves the temporary angina, and the removal is thorough. It may thus happen that tonsillotomy is undertaken in the early stage of recognised or unrecognised scarlet fever, diphtheria, or other specific fever, and it is maintained by many eminent specialists that not only no additional risk is involved, but that it is an expedient course to take.† This may be so if tonsils alone are removed, but one may reasonably doubt the expediency when a large crop of adenoids require removal in addition, since the formation of so extensive a denuded surface is not unattended with risk.

The incidence of a rash upon any solution in continuity of tissue, operative or accidental, is well known and has been well discussed, but there are a few points associated with this particular operation which may throw some light upon its pathology.

Examination of the blood during the week following the operation has, with few exceptions, afforded me evidence of an increase in number of the mononuclear white corpuscles. This leucocytosis, which rarely lasts beyond the tenth day, may be more than coincidental, yet it is hardly surprising after so great a disturbance of lymphoid structures. The removal of tonsils and adenoids likewise affords a very large area for absorption of toxic matter.

The rash may also be interpreted as one due to drug intolerance, since most of the cases were taking the usual mixture of sodium

* Lennox Browne, "Diseases of the Nose and Throat," fifth edition, p. 346.

† *Ibid.*, p. 523.

salicylate and potassium bromide. Still, whatever its pathology may be, the knowledge that a rash often follows tonsillotomy, and that it is not excessively specific, may be reassuring to practitioners experiencing the phenomenon for the first time.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

General Meeting, Friday, July 12, 1901.

MR. MAYO COLLIER, F.R.C.S., *President, in the Chair.*

THE PRESIDENT referred in sympathetic terms to the loss by death of a respected Fellow, Mr. George Stone, of Liverpool, and moved that, in accordance with precedent, the Secretary should write a letter to Mr. Stone's nearest relatives expressive of condolence at the loss sustained.

MR. LENNOX BROWNE seconded the suggestion, which was unanimously adopted.

The following cases were then shown by the PRESIDENT :

CASE 1.—*Double Optic Neuritis, with Paralysis of both External Recti, following Right Tympanic Disease.*

A. B——, a female, aged eighteen, first came under notice with severe spasmodic cough of a peculiar nature which had existed for eight months.

The cough, which was uncontrollable and unaffected by any treatment, ceased only during sleep. A discharge was discovered in the right ear and a large polypus removed from it. The cough was immediately relieved for several days, but returned off and on for about six weeks, when it ceased.

Some return of the aural discharge took place recently, and a small polypus was removed by his colleague, Mr. McGavin. Pain in the region of the mastoid followed, associated with rise of temperature to 101° at night. There was no drowsiness nor loss of memory, nor was there at any time a rigor. Strabismus followed first in the right eye, subsequently in the left. Pain ceased and temperature became subnormal. On examination, optic neuritis, well marked in character, was discovered in both eyes.

The antrum was opened from behind, and the tympanum, epi-tympanic space, and post-tympanic space were opened up and cleared of their contents. The remains of the membrana tympani, much granulation tissue, and cholesteatomatous masses of offensive character were removed.

The case has done well, but the optic neuritis and paralysis have not improved. The diagnosis of this case at first was abscess of the brain—probably the temporo-sphenoidal lobe—but the result of the operation and the course the case has taken rather point to basal meningitis than abscess.

Dr. LODGE said he had seen a similar case, but without the cough as a symptom, in a boy aged ten, with chronic mastoid disease, and for several months afterwards there was very marked double optic neuritis and paresis of both external recti. Curiously, the vision kept good all the time.

Dr. HAWTHORNE suggested the diagnosis of a thrombosis of the cerebral sinuses or veins, or both, similar to what was very occasionally observed in cases of chlorosis. The phenomenon was attributed variously to hypermetropia, to blood changes, and to septic absorption. Another view was that it was due to intracranial thrombosis, and such, he suggested, was the more reasonable interpretation in the present instance. Nor was it necessary to suppose that meningitis was requisite for the production of double optic neuritis.

In response to the President's question as to what part of the venous sinus was meant, Dr. Hawthorne said he presumed the thrombosis would commence in the lateral sinus in connection with the tympanic disease.

Dr. DUNDAS GRANT said the only case he remembered to have seen in which the sixth nerve was affected, with the opportunity of examining after death, was that of a child in whom there was a tuberculous tumour in the pons of such a size that it produced crossed paralysis, so that localization was easy. Both sixth nerves might simultaneously be involved in a growth or meningitic inflammation on the under surface of the pons. He thought the most probable site for a thrombosis would be in the cavernous sinus, whence it would spread across to the other side. He referred to a case recently shown by Dr. Wingrave of otorrhœa with transient optic neuritis, with demonstration of tubercle bacilli in the discharge.

Dr. ROBERT WOODS related the case of a doctor who on an attack of influenza suffered severely from nasal obstruction, for the relief of which he douched his nose, and as a result acute suppura-

tive otitis of the left side took place, and later paralysis of the left external rectus. He was recovering.

The PRESIDENT, in reply, said that there was an absence of all cerebral symptoms and of pain, nor was there any clinical symptom or sign of meningitis. He could not see how the cavernous sinus trouble could affect the sixth nerve, as it took a course along the free margin of the tentorium cerebelli to the floor of the sphenoidal sinus and external to and below the optic nerve. If the peripheral fibres of the optic nerve were affected with neuritis and congestion, it was possible that there might be contamination of both sixth nerves from apposition. He threw that out as a suggestion, and possibly as an explanation.

CASE 2.—*Chronic Sclerosis of the Left Ear after Treatment.*

A. B——, aged thirty, two years ago, whilst in Ceylon suffered from a bad cold in the head, with ulcerated sore throat, and since then has become slowly deaf in the left ear. He has never any pain or discharge, but as an associate of the deafness has complained latterly of a continuous noise as of steam escaping. He is continually catching cold and has a very dry mouth on waking from sleep.

The fauces showed patches of atrophy associated with enlarged and varicose vessels. In other parts the mucous membrane was hypertrophic. The throat was extremely irritable, and the post-nasal space could not be seen on posterior rhinoscopy. The alæ of the nose were collapsed and the passages were considerably narrowed by turbinal hypertrophy. The membranæ tympanorum were seen to be thickened, opaque, and retracted, especially the left. The posterior segment was very much thickened; the stapes and tendon of the stapedius muscle were visible through the membrane.

The hearing on first examination was: Left ear, for a 6-foot watch, contact; T. F. at 2 inches; bell of a repeater at 12 inches. Right ear, normal.

The case had been treated on the lines of restoring freedom of respiratory functions of the nose and the patency of the Eustachian tube by means of catheter, Politzer's bag, and Siegle's exhausting instrument. The result after six weeks is that the patient can hear the watch easily at 9 feet, the bell of repeater at 24 feet, while the hearing-power to conversation is practically normal.

CASE 3.—*Epithelioma of the Maxillary Antrum.*

The patient, a woman aged sixty-three, who was exhibited, had nine months previously undergone removal of the whole of

left upper jaw, together with a growth in the antrum which had invaded the alveolar processes. (*The specimen was shown.*) It was seen that not only was there no return of the disease, but there was scarcely any disfigurement when the obturator and teeth were *in situ*. Body-weight had been regained and the general health appeared to be good.

A Case of Complete Aphonia, with Close Approximation of the Cords. Shown by Dr. BARCLAY BARON.

It had resisted all treatment, and was exhibited for diagnosis and suggestions for treatment.

Dr. Woods, believing the case to be functional, suggested the inhalation of chloroform, and related a case of a boy who, after removal of the tonsils under chloroform, had on awaking from the anæsthetic recovered his voice, which had been lost for some months; and the speaker attributed this result to the chloroform rather than to the removal of the tonsils.

Dr. CULVER JAMES, agreeing also that the case was functional, suggested treatment by hypnotism. Cauterizing the veins at the base of the tongue, which had been noted, would have practically a hypnotic effect.

Mr. LENNOX BROWNE disagreed with the remark of the last speaker. The case he regarded as one of undue tension of the cords, and of the nature of a tenesmus—a reflex of the varicose condition at the base of the tongue—many instances of which he had seen. The treatment by cautery would be calculated to remove the cause of the reflex, and was in no sense merely suggestive. Mr. Nourse recently showed a case of paralysis of one of the vocal cords, and the speaker had suggested removal of the tonsils, which were very enlarged. The procedure was adopted, and the palsy passed away.

Dr. BARCLAY BARON, while not admitting all that was claimed for the procedure, said he would try the effect of the cautery, and if not successful would try that of chloroform, and he would report progress.

Mr. LENNOX BROWNE contributed the following:

1. *Notes with Specimen from an unusual Case of Disease of the Maxillary Antrum.*

The patient, a highly-intelligent and educated lady, had suffered for some years from recurrent and rather profuse discharge of clear transparent fluid from the right nostril, which appeared to be due to the rupture of a cyst. At a later date the maxillary antrum

had been opened through the canine fossa, and a considerable amount of myxomatous tissue having been removed, after an interval the opening had been allowed to close, but a second opening had been required. The patient reported that since the second operation she had suffered from increasing nasal obstruction, and some sanguineous post-nasal discharge. The exhibited growth, which was removed from the back of the palate through the mouth, required considerable force for extraction, and bore evidence that it had protruded from the antrum into the nose, and had been restricted at the artificially-made opening from the antrum into the nasal cavity. From the date of removal, recovery had been rapid and complete.

2. Case of Pretuberculous Condition of Larynx in a Patient treated for Traumatic Perichondritis Twenty Years previously.

M. H—, a nursemaid, aged nineteen, came under my care at the Central London Throat and Ear Hospital, on February 13, 1882, when she gave the following history:

She had been in perfect health up to early in the previous January, when a piece of chicken-bone became impacted in the throat, presumably in the larynx. She suffered such pain as to prevent sleep for a week afterwards; her head was drawn to the right side; she was only able to swallow fluids, and then only in very small quantities. Three weeks after the date of the accident, while eating some bread, she felt the bone move, and, vomiting soon afterwards, ejected it, and she brought the fragment to the hospital. The result was to relieve the localized pain, but to shift it in a less acute form to the entire region; the voice became gradually enfeebled, and to such an extent that it was quite lost a week previous to her entry into the hospital.

The patient's mistress reported also that on the night of the accident she was disturbed by the loud stridor of the breathing of the patient, who slept in a room above, and this continued for several nights. Beyond the aphonia, the notes indicated that the patient's respiration was very embarrassed on exertion; there was a hacking cough with scanty expectoration, and she had such pain in swallowing, which was not confined to one side, that she could only take fluids. She also had profuse night-sweats. Her temperature averaged 99·2° F. to 99·4° F. at night, and was slightly sub-normal each morning.

On further examination it was elicited that the patient had been subjected to colds during the last four winters, and on several occasions had lost her voice. Her father died of phthisis, but with

the exception of a twin brother, who died a week after birth, seven of her brothers and sisters were all living and in good health, at ages varying from forty-nine to thirty-five years.

Both fauces and larynx were anæmic, and in the latter, though there was no sign of any injury from the bone, there was slight swelling of the right arytenoid cartilage, and a disposition to infiltration in the posterior commissure. The thyroid gland was slightly enlarged.

Auscultation failed to discover anything abnormal in either lungs or heart.

The patient was treated mainly by the cold coil over the larynx, and left the hospital at the end of six weeks much improved in health with a restored voice, but she had lost 3 pounds in weight, scaling on the day of her discharge 7 stone.

This patient visited me again on June 21 of the present year—nineteen and a half years after my previous attendance—and during the interval I had not seen her. The patient had changed but little, and she by no means looked her present age. She reported that, on account of continued liability to loss of voice, she had changed her service from nursemaid to that of cook. She had experienced fair health until the beginning of 1900, when in consequence of illness she applied at the Brompton Hospital for Consumption, and was an inmate there from January 17 to April 10. By the courtesy of the resident medical officer, I learn that the notes of the physician under whose charge she was indicated that “she had infiltration of both upper lobes and tubercular laryngitis; no tubercle bacilli were found in the sputum in four examinations. The temperature at night was generally 99° F., and subnormal in the morning.” This corresponds with the chart of 1882. A further note informs me that the specific evidence in the larynx had been by no means marked. She gained 7½ pounds in weight while at Brompton, and on leaving scaled 7 stone 10 pounds.

The patient's recent visit to me was entirely on account of aphonia, which was complete; it was noted, however, that cough was quite phonetic. Examination of the chest gave slight dullness at the right apex in front, with tubular breathing over this area, but there were no rales. Her weight was 7 stone 13 pounds. The condition of the larynx had undergone no change. The sputum was submitted to examination by Mr. St. George Reid, who failed to discover any bacilli in the first specimen, but the result of a second examination is that the bacilli exist, though they are extremely few in number, five only having been

noted in fourteen slides, but fine streptococci are present in all of them.

The remarks called for on this case are but few. There is without doubt a certain predisposition to tubercle, which may be presumed to be of hereditary character, but repeated failure to discover the organism, and the absence of any breakdown in the larynx, as well as the strong disposition for the pulmonary condition to improve, justified me in classifying this case as one which would in past times have been considered tuberculous, but could hardly be so denominated on the evidence afforded by the improved scientific methods of present times. The later report from Mr. Reid, only received this morning, obliges me, however, to modify that opinion. I have no doubt that the voice could be restored by the faradic current, but it would be certain to again fail. I propose to administer to the patient deep sprays of guaiacol—50 per cent. in almond oil—as described in my paper of last year;* and, in spite of the bacteriological examination, I have good hope of being able to present the patient in some months' time in improved health, for, as will be remembered in two of my cases which made marked improvement, bacilli were present in the sputum in one of them for something like fifteen years. It is difficult to say how much of the trouble may be due to original traumatism. Personally, I think a great deal; though since that event the anæmia has been, in my judgment, the most powerful factor in her failure of voice and breakdown in health.

CASE 3.—*Patient with Sarcoma of the Pharynx.*

He had been exhibited twice previously—on the first occasion before operation by Dr. Abercrombie at the March meeting; on the second occasion at the May meeting, after operation by the speaker. On this occasion it was pointed out that the epiglottis, which had been compressed by the growth, had not recovered its form, and there was still a certain amount of thickening at the inferior portion of its site, which suggested to some of those present the possibility of a recurrence.

The patient was here again, and it would be seen that not only had the epiglottis recovered its normal shape and position, but that every trace of infiltration had disappeared: in fact his throat, on visual as well as on laryngoscopic examination, was entirely normal.

* "Condition of the Throat and Larynx predisposing to Tuberculosis" (*Journal of Laryngology*, May, 1900).

The patient had gained nearly a stone in weight since the operation.

CASE 4.—*Sarcoma of the Tonsil.*

H. L.—, aged sixty-six, a man of German nationality, whose occupation for the greater part of his life has been in a tobacco factory. He is of spare habit, but has enjoyed good health until three months ago, when he first experienced pain over the right side of the face, starting from that side of the throat and extending up to the ear. He is chronically deaf in the left (opposite) ear. The pain has increased, and it is now more or less constant. There is no difficulty in speech and there is no cough. Until recently the patient has had no difficulty in swallowing, but he now complains that there is an obstruction to the deglutition of solids, the bolus sometimes appearing to stop and having to be ejected. Although the patient first presented himself at the hospital on June 27, he was not weighed at the time, and I have not had an opportunity of testing the question of emaciation. His son thinks that he is thinner. It will be observed that the right tonsil is considerably enlarged and somewhat inflamed and mammillated, and that highly engorged capillary vessels cross over its surface. The enlargement has involved the pillars of the fauces, but the disease is confined entirely to this region. The corresponding external glands are very swollen and tender to touch.

A point of interest in relation to the nature of the growth is the occupation, and supports Dr. Stewart Low's suggestion at the last meeting, as to the influence of local irritation on the etiology of this form of growth.

The PRESIDENT, commenting on the interest of the case, expressed the belief that the literature of the subject, and inspection of the specimens at the College of Surgeons Museum, would show that a large majority of cases of malignant disease of the tonsil were sarcomata.

Dr. DUNDAS GRANT contributed the following :

1. *Case of Post-Diphtherial Paralysis following very slight Pharyngeal Diphtheria in a Girl aged Fourteen.*

The characteristic defect of speech and regurgitation of liquids through the nose are now passing off, but these have been very marked. There is almost complete obliteration of knee-jerk. The sore throat was so slight that the patient went about the whole time. The occurrence of well-marked paralysis with very slightly marked constitutional disturbance seems illustrative of the observa-

tion that the primary constitutional disturbance is produced by the element in the poisons to which the term "toxin" may be specifically applied, whereas the nerve affection is produced by another element—the "toxone"; the former may be small in quantity and the latter great, or *vice versâ*. The toxin proper is neutralized by antitoxin: the toxone is, however, untouched, hence is explained the efficacy of antitoxin in counteracting the primary poison, although powerless to prevent post-diphtherial paralysis.

2. *Case of Temporo-Sphenoidal Abscess resulting from Chronic Suppurative Inflammation of the Middle-Ear of several Years' duration in a Girl aged Eighteen.*

The most marked symptoms on admission were intense headache and mental disturbance, resembling that of acute alcoholism. Little doubt was entertained that there was an abscess in the cerebrum or cerebellum, and the presence of chewing and swallowing movements indicated that the cerebellum should be explored in the first instance. There was considerable bulging of the dura mater, but on puncturing the cerebellum no pus was found. The temporo-sphenoidal lobe was then exposed above the level of the external auditory meatus, and an abscess was found from which about 1 ounce of extremely fetid pus was evacuated. A large drainage tube was inserted, and through it a gentle irrigation was practised at the time, the tip of a fine syringe being introduced for a very small distance into the drainage tube, without occluding its orifice; each day the drainage tube was extruded further and further, the excess being cut off and the remainder introduced, until simply a narrow ring of india-rubber remained. For a few weeks the patient seemed somewhat childish, but she has now resumed her natural manner. The pus from the abscess was found to be swarming with tubercle bacilli, but there is no further evidence of tubercle. The complete radical mastoid operation was carried out the day before the opening of the cerebral abscess. There is still occasional discharge from the ear, though it is gradually subsiding.

3. *Case of Ulceration of the Tongue in a Man aged Fifty.*

The larger part of the right edge of the tongue is occupied by an ulcer which, in its anterior part, is comparatively shallow with a soft base; more posteriorly there is, however, a somewhat ragged indentation, the surrounding tissue being in parts extremely hard.

The condition had gradually developed during the past twelve months. There was no enlargement of glands and no history of syphilis. The induration is only slightly marked in proportion to the extent of the ulceration. The exhibitor's opinion was in favour of epithelioma, but in view of its departing somewhat from the typical characters the patient had been ordered iodide of potassium and perchloride of mercury for a week or so; should no effect be produced, he would advocate surgical removal.

A Case of Tuberculous Laryngitis. Shown by Dr. McCALL (Bournemouth).

E. B—, aged thirty years, was sent to me last November by Dr. Macintyre of Glasgow suffering from tuberculous disease of throat and lungs. His family history was bad, his father, four sisters, and a brother having died of phthisis pulmonalis. On examination, both vocal cords were found thickened and infiltrated, the right having several granulations covering the anterior third. There were ulcers in both commissures, the granulations in the anterior forming a mass the size of a pea. The inter-arytenoid spaces were swollen and reddened. On phonation, it was impossible for the cords to meet, and the patient could only articulate in a harsh whisper. The epiglottis was quite free from disease. Dulness was marked over the upper half of the left lung, râles being present both in front and behind; over the right apex, harsh breathing with a few râles were heard; cough was very troublesome; six ounces of phlegm, in which blood was frequently present, were expectorated in the twenty-four hours. A slight evening rise of temperature, accompanied occasionally with night-sweats, were complained of. The patient's weight was 10 stone 6 pounds.

The patient was in lodgings, and no special constitutional treatment was laid down, fresh air and plenty of nitrogenous food being, however, insisted on. For the throat condition various intra-laryngeal medicaments were used, such as guaiacol, iodoform, and orthoform, with decided benefit as regards cough and comfort, but with no improvement in the voice.

In January of this year the granulations in the anterior commissure were curetted and lactic acid applied, with slight temporary improvement in the voice. The patient's general condition was improving, but inability to talk prevented him from having any social intercourse, which made him rather depressed and inclined to think he "would never get better." From its well-known action in certain cutaneous affections, I was induced to try resorcin. I commenced its use in the beginning of March, and within a

month the granulations cleared up, leaving firm white cicatrices in both commissures, and the patient recovered the use of his voice.

The resorcin was mixed with orthoform in proportions varying from one-third to two-thirds, and insufflated once every alternate day. The patient's weight is now 12 stones. His right apex is quite clear; there is no dulness at left apex, although rales are still present; he can cycle and walk up hills with no difficulty. He expectorates about half an ounce of phlegm in the twenty-four hours and rarely coughs. My experience with resorcin in this and in other similar throat conditions has led me to use it in preference to any other remedy.

Mr. LENNOX BROWNE, Dr. DUNDAS GRANT, and the PRESIDENT all testified to the satisfactory condition of the patient under the treatment adopted, Dr. Grant confirming from experience the value of Dr. McCall's resorcin and orthoform treatment.

Dr. LODGE showed a patient, the tip of whose nose he had removed for lupus. The patient (a coach-painter by trade) had made for himself an artificial nose of celluloid and aluminium much superior to that of ordinary manufacture.

Discussion on *Tumours of the Pharynx from their Clinical Aspect*, opened by ROBERT H. WOODS, M.B., F.R.C.S. (Dublin).

Mr. ROBERT H. WOODS (Dublin) said: Even if otherwise desirable, it would be futile in so short a paper as this must necessarily be to attempt a complete survey of tumours of the pharynx. It will be more profitable if instead of generalizing from a very limited experience I note whatever of interest has lately come under my own observation.

Four years ago I was consulted by a man, aged twenty-eight, who suffered from sore throat of two months' standing. The posterior pharynx wall was occupied by a tumour the size of a walnut, ulcerated at its most prominent part; the edge was undefined and merged imperceptibly into the pharynx wall, laterally and below; above, it was hidden by the soft palate, which it pushed forward, and completely blocked the nose. He had great pain in swallowing, and had been slightly deaf since the onset of the disease. The surface of the growth, especially near the ulcer, was much redder than normal; there was no cedema. It was more an infiltration than a distinct tumour. Syphilis was denied, but it looked so like a syphiloma that Hg and KI were given. These drugs in no way affected the tumour, which perceptibly increased in size. A specimen was examined microscopically at the British

Institute, and reported on as being lymphoid in nature, there being nothing in the portion sent to indicate that it was malignant. A second piece, examined independently, elicited the statement that the tumour was indistinguishable from adenoid tissue.

The patient began to suffer markedly from dyspnoea, so he was tracheotomized, and a scraping operation was performed. Everything that would come away with a sharp spoon was removed, and the raw surface cauterized with a chemical caustic. The wound healed up, and the patient left the hospital. Two months later he returned nearly as bad as ever, the tumour having recurred. There was no distinct tumour, but induration and enlargement everywhere.

A second operation was undertaken with only temporary benefit. Coley's fluid was injected almost daily for over three weeks, as much as 10-minim doses being given, but without the least benefit, as far as one could see. The patient went home to his native place (Belfast), where he died from asthenia, the combined result of dysphagia and the tumour.

It is difficult to say much on this case. I never saw or read of anything like it. The presumption is it was a sarcoma.

In August last I was consulted by a man, aged fifty-five, who complained that for many months past he felt himself choking up at night, being wakened every now and then by difficulty of breathing. He had no sensation of there being any growth in his throat. On examination of the throat the posterior pharynx wall was seen to be very prominent on the right side. This was due to a large flattish boggy tumour extending from the base of the skull to the larynx, having its most prominent point just above the free margin of the soft palate and a little to the right of the mid-line. The whole sac of the pharynx may be said to have been pushed to the left by the tumour, to which it was not at all fixed, as could be seen by getting the patient to move the constrictor muscles, when the whole pharyngeal sac moved freely on the tumour. I feared the case to be malignant. If not a new growth, it could only have been a spinal abscess, and, indeed, there was an obscure semifluctuation palpable, but the disposition and shape of the lump made this most unlikely.

He consented to my removing a piece for microscopic examination. I therefore cut through the pharynx with a scalpel, exposed the tumour, buried a biting forceps in its substance, and removed a piece. The pathologist found it to be a pure adipose tissue, and I concluded it was a lipoma. Since that time the tumour has not perceptibly increased, and, beyond the inconvenience at night, does not bother him. Until I saw this case I had no knowledge of

lipoma in this situation, but since then I have found reference in Kyle's "Diseases of the Throat" to one other case reported by Bach. In this case I recommended operation, but the patient, hearing the growth was not malignant, postponed his decision until he saw whether it increased in size or gave rise to further trouble.

Through the kindness of a brother practitioner, I saw lately, and for the first time, a case of naevus of the pharynx in a boy aged seventeen. There were three naevi, each about the size of a large pea. One was situated on the base of the tongue, another on the anterior pillar of the fauces, and the third on the left lateral pharyngeal wall. They gave rise to no symptoms, and were discovered accidentally. There was no history to the case.

Early in April of this year I was consulted by a lady, aged sixty-two, who complained of loss of voice. On examination, the right vocal cord was paralyzed, and there was a tumour on the right posterior pharynx wall low down. Only the upper part of the tumour could be seen, the lower part being hidden in the upper part of the gullet. The larynx was pushed forward on the right side, and the right arytenoid region flattened. There was no difficulty in swallowing.

Taking the age of the patient and the situation of the tumour into consideration, it looked very like a case of carcinoma. The most careful examination failed to detect any cause for the paralysis low down in the neck. There was no history of anything likely to cause neuritis. A large bougie passed down without difficulty. On passing the forefinger down the throat the lump could be felt stony hard. The lady had a very thin, lax neck, so that palpation from without was very easy. By dislocating the larynx to the left the tumour could be plainly felt subcutaneously, when there was no doubt it was attached to the right side of the bodies of one or more cervical vertebræ. Taking into account that the lady had evidences of chronic rheumatic arthritis in the hands, I concluded that the tumour was of rheumatic origin, though I was at first unwilling to attribute the paralysis to the pressure of so slowly growing a tumour as an exostosis. There was no suspicion of specific trouble. I saw her at frequent intervals, the last time more than three months after her first visit, and at each subsequent examination felt more and more convinced that the tumour was an exostosis, and that the paralysis was due to the tumour. The only way in which this was possible was by pressure from behind, but whether on nerve or muscle it is not easy to say. The presumption is it was the latter.

About five years ago I was sent a case of a man, aged twenty-four, suffering from a tumour of the pharynx, larynx, and right side of the neck. I believed it to be primarily of the right lateral pharynx wall. The right half of the larynx was completely involved in the tumour, and the glands in the submaxillary region and carotid triangle were extensively engaged and infiltrated almost to a solid mass. A portion of the tumour taken from the throat proved it to be a spindle-celled sarcoma. Dyspnœa was urgent, so I performed high tracheotomy. When recovering from the operation he was attacked by erysipelas, for the treatment of which he was transferred to the fever hospital. On his return my colleagues and I were struck by the great reduction in the size of the tumour. It had shrunk in a few weeks to nearly a half of its former size. The man was most anxious for operation, and after consultation I operated. The primary growth was scraped away *per oram*, and the glands attacked from without. A radical operation was out of the question.

Needless to say, the tumour recurred, and I operated on him a second time ten months later. The hæmorrhage at the first operation was very free, but at the second it was appalling. When scraping out the glands it looked as if great veins had been opened, and each gland had to be packed energetically with gauze as it was dealt with.

Coley's fluid was tried, and with undoubted good effect. In fact, this is the only case in which I found any improvement follow the injection of that preparation. I have lost sight of the case for about two years, but I can say that his condition when I last saw him compared very favourably with what it was when he was first admitted to the hospital.

The operative treatment of tumours of the pharynx, where the extent of the disease precludes its removal under local anæsthesia, presents certain difficulties, the chief of which are avoidance of interference with the patient's breathing, and prevention of blood entering the trachea. In all extensive cases the windpipe should be first opened, either by high tracheotomy or laryngotomy, and chloroform administered through the tube. Unless the tube is intended to be left permanently in I prefer laryngotomy. I consider the Trendelenberg's apparatus as usually sold much too large and clumsy, and prefer the following modification :

An ordinary bivalve tracheal tube is taken, and $\frac{1}{2}$ inch of brass tubing is added to the outer end of the inner tube. Over this is fitted loosely an elbow of brass tubing which leads through a short length, 10 or 12 inches, of rubber tubing to the chloro-

form box. This is made from a small tin shape such as is used by cooks. The tube opens through the bottom, the sides are perforated near the top for admission of air, and over the top is stretched a piece of lint on which the chloroform is sprinkled. If the tube gets choked with mucus, it is only necessary for the anæsthetist to detach the brass elbow from the tracheal tube and clear it. The elbow takes the rubber tube away at once at a right angle to the tracheal tube and parallel to the skin of the neck, thus avoiding the operator's hand, a matter of some importance when the operation is conducted from without.

In a certain class of case—that is, where there is not likely to be very much hæmorrhage—the operation may be performed under a general anæsthetic without opening the windpipe. The chloroform must then be given by a Junker's apparatus through a mouth tube. In order to see well, a ready means of removing the blood is necessary. This is provided by a very simple and most useful apparatus designed by me some years ago for cleft palate operations.

It consisted originally of an enema syringe attached tail on to a four-ounce bottle; two tubes passed through the cork, one to the syringe and the other to a glass nozzle, which was dipped into blood. A squeeze or two of the syringe sucked the air out of the bottle, and the blood rushing in to take its place, left the field of operation clear. This apparatus has been simplified by my friend Mr. E. H. Taylor, who dispenses with the bottle, and uses the enema syringe directly with a short length of rubber tubing fitted over the valve of the syringe. I can strongly recommend this plan for removing blood in quantity from the throat in any operation. The field is cleared in a fraction of the time and with none of the trouble taken in sponging, and no reflexes are excited in a patient not deeply anæsthetized. The great advantage of this instrument is its portability. For theatre use it is better to have a fixed ejector, such as the large wall ejector sold by Ash for dental work. In our theatre in the Richmond Hospital, Dublin, we use the one I now show, which is adapted to an ordinary water-tap, and which communicates with the operation table through the necessary length of aspirating tube. By its means a negative pressure of half an atmosphere is obtainable, which is more than enough to break up a firm blood-clot. I may mention incidentally that I use one of these daily for intra-nasal operations, and find it invaluable.

The interest of tumours proper to the naso-pharynx centres round naso-pharyngeal fibroma, or bleeding polypus of the nose. Of this rare disease I have treated, and I may say cured, six cases.

They were all males at, or a little after, puberty, and the majority of them came from one district in the north-west of Ireland.

In one of these the transition from mucous tissue to fibrous was beautifully seen.

When the tumour is a true polypus there is little real difficulty in its removal by the electric snare. The patient is anæsthetized and put in the head-down position. A piece of $\frac{1}{4}$ -inch rubber tubing is passed through the nose, brought out through the mouth, and tied in front of the upper lip. This drags the soft palate well forward and leaves the tumour clear. Then by a Bellocq's sound the ends of a piece of platinum wire 30 inches long are drawn through the nose from behind forwards, leaving the loop in the mouth, and threaded through the tubes of a straight nasal snare. The tubes are then handed to a reliable assistant, whose care must be that they are kept in the position in which they are handed him, for if he allows them to be rotated the wires, as they pass from their nozzles to form the loop, become crossed, the current will be short-circuited, and the operation will fail. The loop in the mouth is then passed over the tumour, and the tubes pushed along the wires until the pedicle is gripped as high up as possible. The current is then applied and the tumour amputated. I have never had hæmorrhage from these polypoid cases.

When we come to deal with cases where the tumour either grows from a very broad base, or has formed secondary attachments to the vault and sides of the naso-pharynx, the difficulty and danger are enormously increased. But even here, and even in the worst cases, it is possible, for one who has had practice in nasal and post-nasal work, to operate and cure the patient without having recourse to the dreadful procedures advocated by general surgeons for this disease. I hold it criminal for a surgeon nowadays to split the hard palate and force the maxillæ apart, or to chisel the hard palate and the alveolar ridge away from the upper jaws for the purpose of getting access to one of these growths. It is no defence of these methods to say that the growths can be better got at, for even allowing that more of the growth may be removed by this method, it cannot all be got rid of by any plan yet devised. Nor is it in my judgment necessary to remove such a tumour entirely in order to cure the patient.

My experience goes to show that there is what we might term an "apical region of growth," to borrow a botanical expression, situated at or about where the tumour is most prominent, and if this be removed the growth ceases to increase in size. I have reported elsewhere (see "Trans. Roy. Acad. Med., Irel.," 1894) the

method by which I operated on the first of these cases that came under my care. It consisted briefly of snaring whatever I could include in a galvanic loop, and when this was no longer possible, ploughing pieces out of the substance of the tumour by an electric curette which I designed for that purpose. This instrument was shaped like a Gottstein's curette, the knife being a semicircle of platinum wire which, when heated by a current of electricity and buried in the tumour, dug the bits out in the way I describe.

In another subsequent case I saved time by proceeding differently. Having snared what I could, there still remained a large mass of tissue adherent to the roof, posterior wall, and left wall of the naso-pharynx, the outer wall and roof of the left nose, and the left side of the bony septum. The walls of the nose had been pushed and ballooned out of recognition. The tumour originally had extended from the left nostril to the naso-pharynx. I examined a median frozen section of the skull of a boy the same age as my patient, and took a tracing of the roof of the nose from the face to the vertebral column. I found it not far from a circle. I then had a tubular needle made of the same curve as the tracing that fitted the frozen section. The patient having been anæsthetized, the needle was introduced into the nostril and pushed upwards through the tumour parallel to the roof of the nose, until the point could be felt by the forefinger in the naso-pharynx. Two electric snare-wires, each about 24 inches long, were next pushed through the needle, and when the ends appeared in the mouth they were brought forward again by a Belloq's sound along the floor of the nose and out through the same nostril they went in by. The importance of having the needle of the right curve was easily seen by looking at the frozen section, for if the needle had been too straight it might have entered the spinal cord above the first cervical vertebra, a possibility one does not like to dwell on except for the purpose of avoiding it.

The hollow needle was withdrawn, and at this point the hæmorrhage from its track was very free. We had now two loops of wire in the nostril, both going along the track pierced by the needle. Great care had to be taken to keep the loops independent of one another. The next step was to thread the ends of one loop (the outer) into the tubes of a nasal snare, and by keeping the lower free part of the wire well out towards the outer wall of the nose, tightening the loop and passing the current, a plane was cut from the track of the needle downwards and outwards through the tumour. In the same way the inner loop was threaded and tightened, keeping the free part as far in towards the septum as

possible, and a plane cut downwards and inwards, when the wedge-shaped piece of tumour having the needle-track for its apex was easily removed. This plan answered perfectly, and though the necessary manipulations were anything but easy, the result was more than gratifying. The only place where delay occurred was in cutting the first loop through. The steel wire fused on two occasions, but the remaining loop was used each time to pull two other wires through. By the time the second loop was being cut out I had learnt caution; had it fused it could hardly have been replaced.

If I were doing this operation again I should use platinum wire. Care should be taken to increase the resistance in circuit as the length of the loop diminishes, a precaution hardly necessary under ordinary circumstances when the loop used is small to start with.

If the tonsil be not included in the pharynx, and if cases of extension from the tongue and larynx be neglected, there is only one region where carcinoma is frequent, namely, at the opening of the œsophagus. I have seen but one case of cancer of the middle of the posterior pharynx wall, and it occurred in a lady past middle age. As to the future of operations on the pharynx, the direction in which advance is most needed is in removing cancers from the lower part of the pharynx and opening of the œsophagus. Though stricture of the gullet does not come within the limits set apart for discussion to-day, there are border cases where both regions are involved, and so far no operation has been devised by which good access can be had to this region. I have attempted removal of cancer here by means of a subhyoid pharyngotomy, but without success, or, which is the same thing in dealing with cancer, only partial success. The difficulties in the way are enormous. It will be for the future to say whether they are insuperable.

Mr. LENNOX BROWNE: First let me express my concurrence with the President in his acknowledgment of our indebtedness to Dr. Woods, who has given us a vast amount of information derived from actual experience, which makes me all the more wish we could have heard something of his views on the general question. In considering the subject of tumours in this region, we must first remember that the pharynx is divided, although arbitrarily, into three portions. In the first, the rhino-pharynx, and in the third, the laryngo-pharynx, growths may occur, all of which are truly pharyngeal; but in the midway region—the oro-pharynx—growths in the fauces and soft palate are apt to be confused with the pharyngeal, and in the oro-pharyngeal region it is only with tumours from the posterior wall that we ought to concern ourselves.

So far as the naso-pharynx is concerned, the most important of these tumours are those known as naso-pharyngeal fibromata, for I do not suppose we intend to occupy ourselves to-day with naso-pharyngeal adenoids. The question which comes in regard to naso-pharyngeal tumours other than ordinary polypi, is hæmorrhage. I gather from Dr. Woods that in only one case did he have alarming hæmorrhage, and I presume the hæmorrhage was not very severe in the earlier cases, where that point is not mentioned. Dr. George Stoker brought forward a case some time ago in which he had boldly attacked a naso-pharyngeal fibroma which ordinarily would be considered certain to give rise to great hæmorrhage, but where it was small in amount, and I am happy to say that my experience of both naso-pharyngeal tumours and laryngo-pharyngeal tumours has been, up to now, favourable as to hæmorrhage on complete removal.

I have never seen sarcomata in the naso-pharyngeal space. The beautiful drawing Dr. Mackintosh made of my recent case, as seen on oral inspection, suggested that the tumour had commenced in the naso-pharynx, whereas it really began on the back of the wall of the oro-pharynx and descended to the extreme downward limit of the pharynx. That is the case you have recently seen, and I have had during my career a great many other cases, more or less similar.

I think we ought to attack these tumours as soon as possible after we first see them. In none of those in which I have operated have I had a fatal result, though some have recurred. In a few in which vital symptoms were not pressing, I have had success with electrolysis. With regard to other varieties—lipomata, for example—there is a case recorded in the Pathological Transactions by Barnard Holt which grew in the loose tissue of the pharynx. It was not removed, and the patient died of suffocation while he was smoking. In another volume of Transactions of the same Society appears the record of a case by Dr. Frederick Taylor, similar to the second case of Dr. Woods; but this being sessile, diagnosis was difficult (partly because there is almost always a sense of fluctuation in lipomata) between that and retro-pharyngeal abscess, and possibly vertebral caries. In that case the incision was made in the belief that there was pus; but there was none found, and the patient ultimately died. He was never operated upon radically, and I believe the lipomatous nature of the growth was not discovered until after death.

This particular point of diagnosis is an eminently practical one, but very difficult.

There is another condition which may simulate or at least give rise to symptoms of a pharyngeal tumour, namely, curvature in the cervical portion of the spine, which looks very like a new growth as viewed through the mouth, and may give rise to distress in swallowing by direct obstruction to patency of the pharynx. In the same category may be mentioned pharyngeal pouches.

Angeiomata have been spoken of. I have been sometimes puzzled as to why we should expect so much hæmorrhage from tumours on the posterior pharyngeal wall. I do not know that we need expect it, unless it be from the considerable venous plexus which lies there, and was described by Cruveilhier. This seems to be the origin of most of the cases of angeioma, one of which is recorded by Wolfenden.

Reverting again to hæmorrhage, it appears to me that it generally ceases when removal is complete. Dr. Macintyre told me recently of the case of a man who, having had frequent bleedings of moderate extent, on one occasion, in the room of a consulting surgeon to whom Dr. Macintyre took him, had such alarming hæmorrhage that it was thought he would die in the room. He was taken to the infirmary, but on arrival it was found that with the blood he had coughed up a tumour, and the hæmorrhage had ceased. He made a good recovery. Therefore it is important to remember that these tumours may be a source of hæmorrhage, and that they should be completely removed, notwithstanding the likelihood of hæmorrhage, and especially with a view to preventing arrest of this event as well as recurrence of formation.

The nature of the tumours which occur in the laryngo-pharynx is almost always lymphomatous. All the older specimens of the College of Surgeons—I have not seen the recent ones—are those called lymphomatous, probably lympho-sarcoma.

In considering the question of radical treatment, it is important to remember that a growth especially in this region may have a low histological malignancy, and, in fact, may be benign, but from its presence and its obstruction to respiration and deglutition is, nevertheless, in a clinical sense of a malignant nature. In most of Dr. Woods' cases the growth recurred, but in the patient I have shown you to-day there is no recurrence, though, it is true, it is early to speak of that. There seems no tendency towards recurrence. The growth described and figured by me in Burnett's "System of Surgery," which occurred under Dr. Orwin, was removed by the galvano-cautery loop in my presence, and it never recurred, though it was proved on microscopical examination to be a fairly active form of lympho-sarcoma. Dr. Macintyre has recorded a case of

teratoma (they are not very common) in which there were found teeth and hair.

The case of Dr. Woods', which improved temporarily on an attack of erysipelas, is exceedingly interesting; the patient, having had the erysipelas, would suggest further treatment by Coley's fluid in place of a radical operation.

Dr. DUNDAS GRANT had seen one or two cases of epithelioma affecting the pharynx at some distance down, and in which the diagnosis was interesting because, though very little was visible with the laryngoscope, yet the density of the growth, as revealed by the touch, was sufficient to diagnose it as epithelioma. In one of the cases he had seen, the growth was so far down that he could only reach it with the finger during the administration of nitrous oxide gas. He thought there was a growing tendency to avoid operating in those cases. One of the most energetic operating surgeons in London said: "I have given up operating on these cases." He would be very glad to hear if anyone in the room would feel disposed to suggest a modification of that opinion. He once had to deal with a mucous adeno-fibroma, which grew behind the palate, pushing it forward, and at the same time occluded the naso-pharynx. That, he thought, was likely to be a sarcoma, and he was prepared to remove it by means of the galvano-caustic knife, but on snipping through the mucous membrane, he was able to enucleate the tumour, which was of the size of a chestnut. He showed it before the Society some years ago.

Another beautiful case of sarcoma of the pharynx was one in which he had the advice and assistance of Mr. Lennox Browne, and which was figured in that gentleman's book. He removed that portion which involved the tonsil and pillars of the fauces, but it had already invaded the tongue, and the operation was not extended, as there seemed no prospect of any permanent good resulting from it. He thought it was the age of the patient rather than the nature of the tumour which prevented one operating in the case shown at this meeting. He thought on looking at it—he could not get his finger all round it—it would be possible to remove it through the mouth, and remove the glands by an external operation; but the age and condition of the present patient would probably militate against a good result. He thought the tumour was a large-celled, slow-growing fibro-sarcoma, which in a younger patient it would be justifiable to try to remove.

He could not draw upon a large experience of such cases—he thought nobody had a large experience of his own—but if his con-



DR. LODGE'S CASE OF SARCOMA OF THE NASO-PHARYNX.

tribution were added to those of others, it might be of some service.

He would like to ask whether it was still accepted that if a case could be removed by the mouth, the prognosis was infinitely more favourable than when removed from the outside.

Dr. HILLIS (Dublin) said sometimes he was called in to see cases with other surgeons to advise on the question of operation, and he had been impressed by the extreme reluctance with which they undertook those cases, particularly the earlier ones. A man who would undertake the removal of a whole tongue feared to attack a small growing tumour at the back of the pharynx. Perhaps the present discussion would help to some extent to do away with that feeling.

Dr. LODGE (Bradford) said he was fortunate enough last November to meet with a case of sarcoma of the naso-pharynx, which he related.

The patient, a male, aged forty-seven, was admitted to the Royal Halifax Infirmary under my care on November 2, 1900, complaining of nasal obstruction of one month duration. Anterior rhinoscopy—no abnormality. Posterior rhinoscopy showed a tumour in naso-pharynx, which prevented any details of that space being made out. Digitally the tumour felt rather soft. On the right side of neck under sterno-mastoid was a large mass of glands of even softer consistence than tumour in naso-pharynx. On the left side one or two glands were affected although easily movable. The photographs show a sinus near right sterno-clavicular joint from which, the patient states, there had been much discharge a few weeks prior to his admission. This statement rather shook one's faith as to the cervical glandular enlargement being secondary to the post-nasal tumour. We therefore decided to do an exploratory operation on neck, and remove pieces of tumour for microscopical examination. The glands were found to be sarcomatous, and the internal jugular vein was so much involved that it was considered best to excise about 4 inches of its length. The long incision from clavicle to mastoid healed aseptically, and the patient continued fairly comfortable until eleven weeks afterwards, when he died of asthenia. The Clinical Research Association reported that the portions of growth and gland were small-celled sarcoma. At the post-mortem the chief lesion of a secondary character was enlargement of the bronchial glands. My best thanks are due to Dr. Carter, our late senior house-surgeon, for much valuable assistance in the conduct of the case, and to Mr. Wrathall, of the Halifax Infirmary, for the photographs.

In that case the sarcoma was spindle-celled. He felt personally deeply indebted to Dr. Woods, especially for his remarks upon the technique of operations on the mouth, and the valuable hints he had imparted. The case which developed erysipelas was also very interesting.

Dr. VINRACE said with regard to the paper and the justifiability of undertaking certain operations he thought the Fellows were ungrateful in not directing more attention to Mr. Lennox Browne's case, which he apologized for again exhibiting that day, but about which no apology was needed. It would be much better if such cases could be seen after operation oftener. It would be remembered that when first seen opinions against operation had been almost unanimous, but in the hands of those who had the insight and the foresight of Mr. Lennox Browne, the case showed that the condition might be operated on with very great success. That patient was in a very extreme condition and unable to enjoy ordinary conditions of life, but now, owing to Mr. Browne's efforts, all that was altered.

The PRESIDENT said he feared he yielded to no one in the want of knowledge of these growths; still, at the suggestion of Mr. Lennox Browne, he would say a few words on the anatomico-pathological aspect, which he had derived from his reading and his anatomical studies. Looking from an anatomical point of view at the region under discussion, he could sympathize with surgeons who dreaded hæmorrhage, and who decided it would be better to leave tumours in that situation alone. The pharynx was a membranous tube surrounded by the vocal cords and vessels between the head centre and the body generally, and in the centre was the highway of the important functions, the absolutely necessary functions, of respiration and digestion. To place one of those functions in abeyance for five or six minutes meant destruction; therefore in operating in such a region one was surrounded by difficulties of a most appalling character, and, on the other hand, to do nothing might result in death. Mr. Lennox Browne said he did not understand why one should get so much hæmorrhage in that region, but there was no part of the body so richly supplied with blood. The whole region from the teeth to the cricoid cartilage was one living skin of blood, and any incision into the part might be followed by serious hæmorrhage. That was evident in operating for cleft palate. Having those facts in view, one was naturally adverse to operate until one learnt by the experience of others what to do in such cases. One must not turn one's back on such cases, because any tumour of considerable size in the pharynx meant

a threat to the life of the patient, and it was necessary to look the case in the face and deal with it. The commonest tissue in the pharynx was lymphatic tissue, and a great proportion of that was furnished by the tonsil. In perhaps 70 per cent. of the affections of the pharynx the fault was in the tonsils, and while that was the case with inflammatory affections, a large proportion of the tumours in that region were of the lymphatics. Bearing that in mind, was one justified, when the growths reached a certain size, in operating upon them? He sympathized with the gentleman referred to by Dr. Grant who refused to operate on a particular case, for whatever one did in a case of extensive sarcoma of the tonsil one did not remove the whole of the trouble. He came to the conclusion that it was futile to operate on a large growth of the tonsil or a large lympho-sarcoma of the pharynx. When he saw Mr. Browne's case he said he would hesitate to undertake it himself, and so he would, unless he were prepared to do any operation that might be required. It was very necessary to record and note every case which assisted surgeons in dealing with those tumours. Every case fully recorded would assist surgeons to act when they encountered similar ones. The general pathology of tumours of the pharynx was a most interesting subject.

The PRESIDENT proposed a hearty vote of thanks to Dr. Woods for coming all the way from Dublin to contribute such a valuable opening to the discussion. This was heartily carried.

BRITISH MEDICAL ASSOCIATION.

Annual Meeting, Cheltenham, July 30, 31, and August 1, 2, 1901.

SECTION OF LARYNGOLOGY AND OTOTOLOGY.

(Continued from p. 508.)

President: T. MARK HOWELL, F.R.C.S. EDIN.

A DISCUSSION ON

The Local Treatment of Tuberculosis of the Larynx

was opened by Dr. MIDDLEMASS HUNT (Liverpool), Dr. BARCLAY J. BARON (Bristol), and Mr. RICHARD LAKE (London).

Dr. MIDDLEMASS HUNT said: It was no doubt the fact of the British Tuberculosis Congress being held in London this year, together with the renewed activity in the fight against tubercular

disease that the past year has witnessed, which suggested the subject of to-day's discussion. I find, too, that it is eleven years since the treatment of laryngeal phthisis was discussed by this section of the Association. In 1890, when a similar discussion took place at the Birmingham meeting, the epoch-making work of Heryng on "The Curability of Laryngeal Phthisis" had not long been published, and English laryngologists were making their earliest tentative experiments in the surgical treatment of this disease. In the eleven years which have elapsed since then, our experience in this direction has grown enormously, and we are now able to pass judgment on the value of those methods of active treatment which were then only beginning to be employed in this country.

But there is yet another reason why the present time is appropriate for such a discussion. There has been noticeable of late, especially among our American colleagues, a tendency to return to the "bad old times" of therapeutic nihilism in regard to this disease, which prevailed before 1880. This seems to me utterly unjustifiable. I admit that all the bright hopes with which the writings of Krause and Heryng inspired us have not been realized, but a great and permanent advance in the treatment of a desperate disease has been made, and we must not go back. Though the number of complete and lasting cures is still admittedly very small, it is no exaggeration to say that thousands of lives have been prolonged, and an incalculable amount of suffering averted, as a result of the work which has been done in this field.

I regret the complete absence of novelty in what I have to bring before you to-day. I have no new method of treatment, nor even a new drug to commend to you. I have simply prepared a brief statement of the principles and methods of treatment which I employ in my own practice, and which are probably identical with those followed by the great majority of the members of this section.

In every case of laryngeal phthisis coming under my care, I try to determine whether it is one for curative or for palliative treatment. This is not always easy to do. At times cases of limited disease, in which we expect a cure, go to the bad; while in others, extensive ulcerations, which appear hopeless, will heal up and the disease become arrested for long periods.

Curative treatment, as I understand the term, is essentially surgical. It means the removal of all diseased tissues by cutting instruments, or their destruction by caustics, such as lactic or chromic acid.

Palliative treatment includes all antiseptic and local anæsthetic

applications, and is only occasionally surgical, as when the necessity arises to relieve dyspnœa or severe dysphagia.

The cases suited for curative treatment are those of limited disease, preferably situated intra-laryngeally and of a hypertrophic form indicating local resistance; cases in which the lung disease is slight in amount, and either stationary or only very slowly progressing, the general health and appetite being good, the patient being free from fever, and of a courageous and hopeful temperament.

Whenever we have extensive ulceration or infiltration, especially with much œdema or perichondritis, where there is high fever, loss of appetite, advancing lung disease, or evidence of the patient being deeply stricken, our treatment must be strictly palliative.

For carrying out curative treatment, I employ the curette, cutting forceps, and lactic acid. Which of these agents we choose for a particular case will depend on the nature of the lesion to be dealt with and on its situation. In my opinion, neither lactic acid nor any other application will remove infiltration covered by unbroken mucous membrane. Wherever we have well-defined, or at least limited infiltration without ulceration, a mass of granulations, or a distinct tumour formation, the first step must be the thorough removal of the diseased tissue by the curette, followed by an application of lactic acid. These operations are often extremely difficult—far more so than the removal of simple growths, on account of the great irritability of the pharynx in this disease—and are apt to be very painful when performed on parts at the entrance to the larynx. With the simple curette, hæmorrhage is trifling, but once or twice I have seen it rather free after using the cutting forceps.

I have never performed the extensive operations advocated by Schmidt, Krause, and Heryng, and in this country by Lake, but have confined my use of the curette and forceps to cases of limited disease, where there appeared to be a reasonable probability of removing the whole diseased tissues by operation.

Other methods of dealing with tubercular infiltrations, such as scarification with the rubbing in of lactic acid, or the submucous injection of creasote, iodoform emulsion, lactic acid, chloride of zinc, etc., have now been almost entirely abandoned as unsatisfactory in their results.

In the great majority of the cases we meet with, ulceration is already present. If it is superficial and not too extensive, especially when situated on the cords, ventricular bands, or posterior wall, lactic acid alone will usually secure healing. I believe it is still the

best application we possess for treating tubercular laryngitis in the stage of ulceration. I am aware that a recent American writer has spoken of the lactic acid treatment as "antiquated and barbarous," but the only substitute this writer offers us is an emulsion of menthol and orthoform, which, however valuable for palliative treatment, is utterly useless to obtain healing of ulceration or to destroy infiltrations.

There is still some difference of opinion as to how to use lactic acid. We must remember it is not as an antiseptic, but as a destructive agent that we employ it in laryngeal phthisis. It is of little use, therefore, to employ solutions of less than 50 per cent., and we should rapidly go on to pure acid. We should not worry the larynx by frequent applications, but having thoroughly rubbed into the ulcerated surface a strong solution, wait till the slough clears off—in a week or a fortnight—before renewing our application. In this way three or four applications will usually bring about cicatrization. We occasionally meet with cases in which these strong solutions are not well borne, and must then use weaker ones of 20 to 30 per cent., but such cases are very rare in my experience.

In the case of deep granulating ulcers of limited extent the lactic acid should be energetically applied in the same manner, but it will often hasten healing if we first thoroughly curette the ulcerated surface.

Unfortunately, a large number of the cases we meet with, especially among our hospital patients, only admit of palliative treatment. The extent of the disease and the state of the general health prevent any hope of eradicating or even arresting the disease, but still we can do much to relieve their sufferings. We know that an untreated case of laryngeal phthisis goes more rapidly bad, and with more suffering to the patient, than a treated one. The inflammatory oedema, often the cause of dyspnoea and dysphagia, we know to be due to secondary infection by streptococci and staphylococci. This secondary infection may be prevented, or at least held in check, by the use of antiseptics, such as menthol, carbolic acid, iodoform, etc., applied by brushings, sprays, injections, or inhalations. Nearly all these drugs have at some time been recommended to procure the healing of tubercular ulceration of the larynx, but it is doubtful if any merely antiseptic application will bring about cicatrization of a tuberculous ulcer.

A difficult question, and one which must largely be left to individual experience, is to what extent we may use surgical means in the palliative treatment of this disease. The incision of an

inflammatory œdema of the arytenoid or epiglottis, which was first practised by the English physician Marcet, is a rational surgical procedure which will often relieve dysphagia, and is not followed by ulceration, as was at one time feared on purely theoretical grounds.

That the punching out of a painful ulcer on the edge of the epiglottis or over an arytenoid is often the most effective way of relieving the terrible dysphagia there is no doubt, and I employ this method where the condition of the patient permits, if lactic acid alone does not give the necessary relief; but I am opposed to performing these painful operations in advanced and hopeless cases, where we can at least mitigate the sufferings of the patient by the use of local and general anæsthetics. It is in such cases that Freudenthal's emulsion will be found of value.

With regard to external surgical treatment, tracheotomy will occasionally be required to relieve dyspnoea, though, as Schmidt, its most strenuous advocate in this disease, admits, much less frequently now than formerly. The improved intra-laryngeal treatment has lessened the necessity for it.

As a curative measure it has now been replaced by thyrotomy in those cases where the laryngeal disease from its extent or situation cannot be completely removed by intra-laryngeal operation, there being very little or no disease of the lungs present, and the general health being good.

That a partial laryngectomy might be a justifiable operation in certain rare circumstances, such as severe one-sided laryngeal disease with a good general state of health and absence of disease of the lungs, we may admit, but the conditions which justify general external operation in tuberculosis of the larynx are so extremely rarely met with that they need hardly be considered in a discussion in the local treatment of that disease.

Dr. BARCLAY J. BARON said: Before proceeding with the subject of our discussion, I think we may profitably ask ourselves a question as to the extent to which laryngeal tuberculosis can be looked upon as curable. The day has gone by when we need debate as to whether it is curable, but it is open to us to hold divergent opinions as to the extent to which it is curable. No doubt the optimism which arose after it was clearly demonstrated that certain surgical measures were able to cope with the disease was not quite justifiable, and has not been realized; but we now say with the experience of very numerous cases having been treated that in a certain small proportion of cases we are able really to cure the

larynx, spite of the well-known fact that recurrence is so apt to take place. Where we do succeed to our entire satisfaction, we only do so where we deal with the patient in whose lungs we are able to bring about a healed cicatricial fibroid condition. We can, therefore, only look for cure where we have a favourable pulmonary and constitutional state, and only in a small proportion of all such cases where lung and larynx are both attacked.

Local treatment alone will not, I believe, suffice to effect a cure, and it must always go hand in hand with general treatment. I have seen complete healing of tubercular ulceration of the larynx where the open-air treatment was thoroughly carried out, lungs and larynx healing *pari passu*, and where the local treatment was of the simplest character. I have never seen local treatment alone do this. The aim of local treatment is threefold. First to attack and destroy by direct surgical and topical medical treatment the bacilli. Second, by giving rest to the affected organ and by protecting its tissues from irritation and inflammation, to restore the natural resistance to disease which, if attacked by bacilli, they have largely lost, and so indirectly destroy the bacilli; also to help tissues not yet attacked to retain their health, and so prevent spread of the mischief. Thirdly, in cases where we are unable to do much in either of these directions, to ameliorate symptoms of which the most important is dysphagia. The most definite results of local treatment are seen where ulceration has taken place, and where it is legitimate and right to vigorously attack, by instruments and powerful remedies topically applied, the diseased surface and necrosed structures. It is very difficult to say what amount of good we are doing by the application of local measures in the pre-ulcerative stage of the disease, when we know that our remedies must usually reach the affected parts by roundabout channels.

In the early stage of the disease, where we are dealing with a laryngeal inflammation, and where the infiltration, if any be present, is so slight as to make it very difficult to diagnose the condition from a simple laryngitis, our treatment should be of the mildest possible character. It should merely consist in giving such instructions to the patient as will give rest to the organ, and in every way should be that suitable for a simple laryngitis.

In the next stage of infiltration, speaking generally, we must shield the larynx from all irritation; for example, avoidance of too much voice use, irritating articles of food and drink, tobacco smoking, the inhalation of irritating chemical substances and of dust, as in various manufactures, handling vegetables, hides, etc.

The use of soothing and antiseptic substances inhaled—*e.g.*,

benzoin, creosote, menthol, etc., or sprays of menthol and guaiacol, or intratracheal injections of the same—is beneficial. Naturally drugs that stop tickling, purposeless cough, especially codeia, cocaine, menthol, antipyrin, etc., in pastille or lozenge are of value.

Submucous injections of cocaine, guaiacol, lactic acid, perchloride of mercury, etc., have been recommended during this stage; but I do not approve of this, as I do not believe that we can thereby directly act on the bacilli, nor do I think that we can practise this method without the obvious risk of increasing or setting up inflammation, which makes the tissue less resistant to bacillary invasion. The use of lactic acid applied to the unbroken infiltrated mucous membrane has been recommended, and I have tried it, but I have not seen it sufficiently useful to induce me to continue it.

Some specialists have removed cartilages—*e.g.*, arytenoids and even the epiglottis—in this stage. I have no personal experience of these severe measures, but I must confess to a feeling of great dissatisfaction with my present methods, and I should like to know from those who have done this if they consider surgical interference admissible in the pre-ulcerative stage as it is after ulceration has taken place.

For the dysphagia, which is so often a symptom when the epiglottis is infiltrated, I know of no remedy of recent invention equal to cocaine or eucaine, and I find that the addition of sulphate of soda to hydrochloride of cocaine, as recommended by Wingrave, much increases the analgesic property of that drug, and so enables us to use effectually a solution of weaker percentage strength. It is a matter of indifference how we apply the drug—by spray, swabbing, or in a pastille; I have not found orthoform or any other drug so good as these.

It is in the third or ulcerated stage of the disease that local treatment is most definitely valuable, because the application of surgical methods has enabled us to do a good deal to ameliorate the suffering, if not rid the patient of the disease. Although this is an advanced stage of the disease, I do not feel so helpless in treatment as I do in the preceding pre-ulcerative condition.

Our evident task is to destroy bacilli, and set up a healthy healing action in ulcerated and necrosed structures by so doing. Seeing that morbid processes are surely and slowly destroying the tissues, it is reasonable to act with energy, and the published results of the removal of the diseased arytenoids and even the epiglottis go far to induce us to perform these operations more frequently than has hitherto been done. Personally, I usually curette the

ulcerated surfaces, and afterwards thoroughly and accurately rub in lactic acid. I think that we ought to begin with 50 per cent. solution, and as rapidly as possible go on to full strength. This should be repeated after an interval of seven to ten days. I do not believe in using weak solutions daily, as we get practically no good effect at all from them. I have often seen a distinctly anæsthetic effect follow this treatment, presumably from the eschar protecting the nerves exposed by ulceration. I have never seen serious inflammatory œdematous swelling follow its use, although we ought always to bear in mind the possibility of its occurrence, and guard against it by enjoining on the patient rest of the voice for a few days. A great many other substances have been recommended to attain the same end, but I have not found any of them so thoroughly satisfactory as lactic acid.

I have recently seen a case of extensive tubercular ulceration very successfully treated by Dr. McCall by the daily insufflation of resorcin (1 part) and orthoform (2 parts); and whilst one cannot come to any conclusion in tuberculosis unless a fair number of cases have been treated, what I saw will induce me to give this method a trial.

What are the contra-indications to surgical interference? Firstly and principally, advanced and progressing tuberculosis of the lung, with high temperature, night-sweats, and emaciation. Secondly, acute inflammation of the larynx, especially perichondritis. I have had serious shortening of life occur in a case of advanced pulmonary phthisis after curettement of the epiglottis and rubbing in of lactic acid, due to the pain and worry of the operation, and after it, where, in fact, so far from diminishing the dysphagia, it increased it, and the patient rapidly deteriorated. We ought, therefore, carefully to select our cases, and only operate on those which give fair promise of cure, always keeping in mind the general condition of the patient. For the relief of pain, cocaine, eucaine, menthol, etc., are all of value; but orthoform, insufflated on to the ulcers, or used as an emulsion by means of a spray, is most satisfactory. The anæsthesia is much longer, and the drug is practically not poisonous. I use guaiacol with menthol in a spray of oily solution and as an intratracheal injection, but I am very sceptical as to its value as an antiseptic, an analgesic, or a germicide when used in weak solution.

Lastly, ought we to practise tracheotomy in these cases more than we do in order to give physiological rest to the diseased inflamed organ? We know how beneficial it often is in malignant disease and in syphilitic perichondritis, where there is encroach-

ment on the lumen of the glottis, and so difficulty of respiration. Is it so in tuberculosis? I have no personal views to lay before you, but from what I read it is disappointing.

Mr. LAKE said: I propose to confine my remarks entirely to the question of the operative treatment of laryngeal tuberculosis. The indications, or contra-indications, for operative treatment which we shall have to discuss must be considered as applying expressly to the use of scraping and cutting instruments. We may preface the consideration of this subject with a brief summary of the contra-indications, as enunciated by Heryng: * “Advanced pulmonary phthisis, with hectic and wasting; diffuse miliary tubercle of the larynx; all cachectic conditions; severe stenosis of the larynx, caused by inflammatory swelling; in nervous and timid patients, and especially in those whose condition promises little hope of recovery.” I desire to take this opportunity of apologizing to Dr. Heryng for having attributed to him a too universal application of operative methods.†

Indications for Operation.—I would state at the outset that, taking all cases of laryngeal phthisis, from the very slightest lesion that can be demonstrated to be tuberculous to the most grave, not more than 15 per cent. of them require cutting operation, or can be more improved by this means beyond what can be otherwise obtained.

Let us now consider those conditions which indicate or contra-indicate the use of operative measures, and guide us in the selection of the form of treatment we are about to employ. The first point that should be considered is the state of the lungs, for of all factors influencing our decisions this is the chief; the relative acuteness of the disease, its extent, its rate of progress, and the tendency to cavity formation, are among the points to which one's attention should be particularly directed as having a direct and important bearing on the subject; thus, with regard to the lung, general miliary tuberculosis and rapidly-extending disease are contra-indications. On the contrary, a tendency for the disease to become stationary, to be limited in extent, or chronic, point towards our being able to obtain a good result in the throat, and correspondingly the fewer indications there are of lung mischief, the better our prognosis and the bolder should be our operative measures.

In the Matter of General Local Conditions.—Should the pharynx, palate, or base of the tongue, be involved in the pathological

* *Journal of Laryngology*, 1895.

† “Laryngeal Phthisis,” Lake, 1901.

process, the less that is done surgically, with a view of cure, the better. This naturally does not include surgical operations for the relief of pain.

From the temperature-chart much information is derived. A steady, temperature should usually be considered an essential indication before undertaking curative treatment. Like all general statements, this is liable to exceptions, those exceptions being where, from a careful observation of the patient and a frequent examination of the patient's lungs, there is reason to believe that the rises of temperature are chiefly or entirely due to the laryngeal infection. Exceedingly irregular temperatures, or a regular temperature, where daily the rise exceeds $100\cdot5$, should make one hesitate before operating, unless for the relief of pain or dyspnoea; that is to say, palliative operations are not contra-indicated, whilst curative are.

Whilst on the subject of temperature, there is another point which has engaged my attention during the last few months with a view of bringing forward to-day something, however small, which had escaped the attention of previous observers—this is, the effect of operation on the patient's temperature.

TABLE SHOWING AFTER-EFFECT OF OPERATIONS ON THE LARYNX ON THE TEMPERATURE—RESULT.

No. of Cases.	Negative.	Post-operative Rise.
35	31	4*

In the table it will be seen that we have a list of 35 cases operated on in which the effect of operation on the temperature-chart has been noted, and in only 4 of these cases was there any subsequent rise of temperature; and, from a careful observation of these cases, I would suggest that the post-operative rise is not usually due to the effect of the operation, but frequently due to neurotic influences. I, however, consider these rises in temperature as indications for a temporary postponement of further operative measures on the ground that everything which tends to raise the temperature of a tuberculous patient should be avoided as hurtful and likely to cause more harm generally than operation would do good locally.

Passing on to the local conditions, one finds that cases which offer us but little hope even of relief are acute miliary tuberculosis of the larynx, but to my mind there is no other condition of the

* 1. Ablation of epiglottis, rise lasted six days. 2. Small piece punched out of epiglottis ($101\cdot6$). 3. Arytenoid. operations. 4. Curettement of ventricular band.

larynx in this disease which should of itself prohibit operative interference; that is to say, it is from the general considerations that we find our contra-indications, and not from the state of the larynx.

Finally, the relief of pain, dysphagia, or dyspnoea, whether constant or caused by speaking, swallowing, or exertion, are invariably indications for operation when other means have failed to give relief. Remedial measures have been already amply discussed by my colleagues, Middlemass Hunt and Barclay Baron. It is for the relief of dysphagia, and particularly in this connection alone, that removal of the epiglottis finds its justification. Severe involvement of the epiglottis almost invariably ends fatally, but its removal, to the greatest extent possible, is justifiable from the immense relief from dysphagia obtained by this means alone. Life is also undoubtedly prolonged by this procedure, judging by my cases, to the extent of one or two months, and the patient's general mental condition is ameliorated.

Operative Treatment.—In considering the various forms of operative treatment, I would take as the mildest form of operative interference the submucous injection of fluids, and would premise that all fluids so injected have the same action on the tissues; that is to say, whether the medium be of an oily nature, with an essential oil as its active principle, an acid, or an acid mineral salt, the effect is the same: first, it causes a local hyperæmia, and ultimately a submucous contraction by organization and contraction of the small-celled infiltration. This treatment, as everyone is aware, was largely introduced into England by Watson Williams, and has since been brought very much to the fore by Chappell of New York. I cannot speak from personal knowledge of the effect of the submucous injection of guaiacol or creosote, but these drugs have the reputation of causing at times too violent a reaction. My own injections have been confined to 5 per cent. solutions of chloride of zinc.

In making the mucous injections, the needle should be fairly deeply buried, and should only be introduced where the tissue is deep and the possibility of swelling exists. It seems to me that it has its chief use in subglottic thickening or swelling and ulceration of the ventricular band, especially the two former, when due to perichondrial inflammation. These injections should never be made where the tissue is shallow and the possibility for swelling does not exist; otherwise extensive sloughing will occur.

Of the various forms of syringe, it does not appear to me that any one can claim marked superiority over the others.

Incision and Scarification.—Moritz Schmidt is the ablest exponent of this form of treatment, and his results are most gratifying, showing, out of a total of 300 cases, 16 cures and 23 improvements. Scarification and incision are, of course, chiefly indicated in oedematous swelling of the arytenoids and of the ventricular bands.

Galvano-puncture has many indications in common with submucous injection, but is also capable of use in places where the tissue is shallow, and Watson Williams has recently depicted a larynx in which an extensive subglottic infiltration was relieved by this means, and the galvano-cautery point may be used also to the surface, especially in the subglottic region, to large or flat swellings which do not lend themselves to removal by the forceps.

Removal of the epiglottis by the galvano-cautery snare has proved, in my hands, very useful and quite painless. I have three times removed the major part of the organ; in the small jar which I send round are two of these specimens. Its use, however, is confined to the removal of this organ, and, as far as I can see, is not likely to find that use extended to other regions. I had the erroneous idea that my case was the first reported, but Solis Cohen and Hajek* had each reported the entire removal of the epiglottis for tuberculous laryngitis.

It is to Heryng and Krause that laryngeal curettes and punch forceps owe their origin. The curettes find their chief use in the removal of granulomata and exuberant granulations from the region of the processus vocales, in scraping away granulation tissue from the base of ulcers in the ventricular bands and on the lower aspect of the epiglottis; also less frequently they may be used for ulcers on other parts, the true chords and interarytenoid region, but, speaking generally, ulcers on the true chords do not, in my opinion, require curettement.

The use of the punch forceps is confined to swellings, or swellings with ulceration, more especially on the posterior half of the larynx, which includes the interarytenoid region, the arytenoid eminences, and aryepiglottic folds, together with great hypertrophies of the ventricular bands. Not unnaturally, the forceps which bear my name are those which I prefer, but equally good results can be obtained by the use of Heryng or Krause's double curettes.

Operations of this class are never painful, appear seldom to have any bad local after-effects, and are very rarely followed by pain on deglutition. At each sitting as much should be removed

* *Journal of Laryngology*, p. 461, 1894.

as can be tolerated by the patient. The amount of local anæsthetic required—whether it be eucaine, or cocaine, or a mixture of the two—for these operations is extremely small, and should be used as much to abolish sensibility in the epiglottis and base of the tongue and surrounding parts as in the larynx itself, and my experience leads me not to delay at all after the painting, especially if these operations require to be frequently repeated, as there appears to be in tuberculous patients a peculiar tendency to the establishment of an intolerance of eucaine and cocaine.

Tracheotomy as a curative measure in tuberculous laryngitis should never be employed. In cases of laryngeal stenosis in which syphilis is superadded to the tuberculous disease it is, however, most valuable. Laryngo-fissure would at first sight appear the ideal treatment for primary infection of the larynx, but the risk of the case not being primary, and the consequent exposure of so large a cut surface to the malign influence of the tubercle bacilli, quite counteracts the possible advantages, though there are cases on record. Dr. Wood's case may be, of course, an exception, and one we shall listen to with interest.

After all operations the same line of treatment is indicated. The patient may continue his ordinary course of treatment, whether that be open-air or not. Even removal of the epiglottis does not necessitate any special alteration in the temperature, provided this be not below 60° F. The moment the operation is completed the parts should be freely rubbed with that antiseptic preferred by the operator. For my part, this is usually the 5 or 7 per cent. formalin, and if the removal of tissue is from the ventricular bands or epiglottis, equal parts of orthoform and amyloform are insufflated, to be repeated when necessary. The larynx is also painted, and the insufflation repeated every morning. The patient is usually told not to talk or move about for half an hour after the operation, but that is the only restriction placed on his actions.

In conclusion, I believe that the wider one's experience of this disease the less frequently will one operate, but the more freely will one operate when one does operate. At the North London Hospital for Consumption, since the introduction of the open-air treatment, despite the addition of forty beds since I was first connected with the institution, the cases on which I operate are now far fewer. This may of course be, and is, partly due to the fact that the cases selected for open-air treatment are early, and not often cases of miliary tuberculosis. It is necessary that one should buy one's own experience, and no one can by reading alone avoid

operating on cases which, were his judgment more matured, he would have left alone.

Dr. ANTHONY MCCALL (Bournemouth) said the case Dr. Baron had kindly referred to was shown by him at the last meeting of the British Laryngological Society. It presented the appearance of what one might call a cured case of advanced disease—clear white scars in the anterior and posterior commissures, accurate approximation of the cords on phonation, and only slight swelling in the interarytenoid space. This result was gained by the use of resorcin and orthoform in varying proportions from one-third to two-thirds, insufflated every alternate day.

He had considerable experience with this treatment, and could speak highly of it in cases where there was ulceration with granulations; in short, in those cases where curetting is usually done.

In the flat superficial ulceration, such as were commonly met with in the epiglottis, orthoform, alone, or in combination with, bismuth, morphia or cocaine, answers better. Dr. Baron, he said, had remarked that local conditions sometimes improve without local treatment, and no doubt that is so; on the other hand, there are the cases in which the general condition has improved and the throat condition has got worse. Dr. McCall had never met a patient who was not pleased at the relief experienced by suitable intralaryngeal treatment.

Dr. JOESON HORNE (London) said it would be difficult to overrate the importance of the subject. It would also be difficult to overstate the frequency with which it had been discussed. But it would be still more difficult to draw any precise conclusions from what had been published as to the lines of treatment to be followed.

The surgical treatment of the disease had its limitations, and within these limitations he considered it had undoubtedly been beneficial. The extreme surgical measures which had been advocated by some could not be regarded as remedial; at their best they were only mechanical means of overcoming physical difficulties which comparatively seldom occurred. Too much stress could not be laid upon the important pathological fact, which he himself had observed, that by the time the larynx is so extensively involved in the disease as to require surgical treatment cavitation is already established in the lung, so that in treating the larynx for tuberculosis we were dealing with but a part of a diseased respiratory tract, and the need for general treatment must not be lost sight of.

In the more chronic forms of the disease, in which thickening

of the mucous membrane occurred without ulceration, Dr. Horne considered it was irrational to cause a breach of surface by curettes or cutting forceps. The hyperplasia and the accompanying fibrosis constituted a protective action of the epithelium, which was to be hoped for and encouraged, as being a process of arrest of the disease which surgery could not assist.

He noted that no mention had been made of tuberculin. This he had found of service in cases in which there had been destruction of tissue; it seemed to render localized ulcers in the larynx more amenable to surgical treatment.

Dr. P. WATSON WILLIAMS (Bristol) said: It was very rare indeed that tuberculous disease was confined to the larynx, and it must be conceded that, doubtful as the prognosis must always be, even in the more favourable cases of pulmonary tuberculosis, the outlook was always rendered graver by the occurrence of laryngeal tuberculosis; hence it was absolutely essential that in determining the measures that are desirable in treating the larynx we should have due regard to the general condition of the patient, and in his experience the percentage of cases of laryngeal tuberculosis that could be cured was small.

He entirely agreed with the statement of Dr. Middlemass Hunt that successful local treatment was practically limited to those cases in which the tuberculous deposit was localized. In such cases he had obtained a number of very successful results, and these he would subdivide into: (*a*) Those in which there had been a tuberculous neoplasm, either a mammillated or papillary hypertrophy, or the most distinct but much more rarely-defined neoplasm. (*b*) Those in which there had been localized deposit with ulceration.

When a defined neoplasm or an ulcerating deposit existed, he found that removal of the deposit, with subsequent application of lactic acid, afforded, in cases otherwise suitable, very satisfactory results. When a localized tuberculous infiltration was present, but with no breach of surface, he thought it was very desirable to avoid curettement if possible. For these he had used submucous injections with satisfactory results in some cases.

He injected 1 or 2 minims of a 20 per cent. guaiacol, or of a 1 in 1,000 solution of biniodide of mercury. The injection caused temporary increased local inflammation, which, however, soon subsided, and was followed by relief of pain, and, after the injections had been repeated several times, by a diminution or disappearance of the deposits.

In some of the cases in which he had used submucous injec-

tions, subsequently more superficial ulceration had led him to curette and apply lactic acid.

Two points he desired to emphasize, viz.: First, the necessity of all general therapeutic measures and the extreme value of what he preferred to call, not open-air treatment, but sanatorium treatment; and, secondly, the immense importance of prolonged rest of the larynx. He did not think it was enough to enjoin a patient not to speak; they should not be allowed to whisper.

Dr. STCLAIR THOMSON (London) thought the subject had been admirably presented, but that the net result was disappointing. The surgical treatment of laryngeal tuberculosis had been before them for more than eleven years, and when they remembered the large opportunities for studying the disease, the enthusiasm of those who had investigated it, and the amount of literature devoted to it, the cases of cure were few and far between. Two statements had been made in the opening papers which he thought should be fully discussed before going out to the profession with the endorsement of the Section. One was to the effect that local curative treatment was essentially surgical; but he held that strict rest of the arytenoid joint was essentially a form of local treatment, as it was in tuberculosis of the knee or hip-joint. The second statement was that untreated cases go more rapidly downhill than treated cases. It of course might be objected, and rightly, too, that it depended on who carried out the local treatment; but while he had seen many cases rendered worse by local interference, he felt sure that others could support him in saying that cases did heal without any local surgical measures.

While the openers had covered almost the whole subject, they left the Section without a plain statement of the results. Although a very different affection, he thought they might ask for the statistics of radical cure, as they had for malignant disease of the larynx. When he said "cured," he meant that the tuberculosis of the lungs was also arrested, for it was unsatisfactory to the patient and not enhancing the position of their profession if we found that the pulmonary phthisis brought the patient to the grave, and all they could put on their case-papers was "died cured of tuberculous laryngitis."

In case Dr. Hunt should number him amongst the nihilists, he would say that he was very hopeful of progress in the treatment of tubercular laryngitis, but that progress was not to be expected with cases in the third stage of the affection, but in the making of an early diagnosis of the disease in an incipient form. When this was made sanatoria treatment should be carried out, together with

strict rest of the voice, and such symptomatic treatment as was indicated. The necessity for rest of the voice, and the paucity of cases in which local surgical treatment was called for, were supported by pathological observation. He regretted that Dr. Horne had not referred to his own studies, which showed that the ventricle of Morgagni was a frequent focus of infection. Mr. Lake had stated in his book that the interarytenoid region was attacked twice as often as the vocal cords, and three times as often as the epiglottis. Again, Fowler made fifty consecutive autopsies, and found that the arytenoid joint was always affected. These results supported the plea which had already been made for voice rest.

With palliative remedies they were well supplied, and excellent results were obtainable; but except in a few cases in early stages and favourable subjects, local surgical treatment was rarely called for, and seldom crowned with complete and lasting success.

Dr. ROBERT WOODS (Dublin) showed an instrument which he had devised for applying lactic acid to the larynx. It was shaped like a Schrötter's dilator, having round its lower end a circular wick to hold the acid. Under ordinary circumstances the patient's breath is stopped by the brush or swab, and the duration of the application, therefore, very limited. The object of the instrument is to get over this difficulty and enable a prolonged application to be made to the larynx without interference with the patient's respiration. When the instrument lies in the larynx the wick lies against the ulcerated surfaces, and the patient at the same time breathes through the centre of the tube. The application is therefore much more prolonged, and the intimacy with which the drug gets to the tissues proportionately greater. The instrument is of metal, and can be boiled. It is made by Mayer and Meltzer.

Dr. DE HAVILLAND HALL (London) was able to speak of the miserable condition of patients suffering from laryngeal tuberculosis in the days preceding the introduction of local treatment; he could therefore affirm that much benefit had resulted from local treatment, notably in the relief of pain, dysphagia and irritable cough. He had employed local treatment in a somewhat cautious manner; he had not used the curette in cases in which the mucous surface was unbroken, but had confined local treatment to cases of ulceration. He also alluded to a case of very extensive ulceration of the larynx, accompanied by sloughing of part of the epiglottis, in which the energetic use of lactic had brought about healing, though he had continued the treatment rather in deference to the wishes of the patient's friend than with any great hope of obtaining a cure. This case emphasized the importance of continuing treatment even

in apparently hopeless cases. He advocated the employment of weak solutions of lactic acid to commence with—*e.g.*, 25 to 30 per cent.; these can be gradually increased to 50 or 60 per cent., or the pure acid. He laid great stress on the thorough cocainization of the larynx previous to the use of lactic acid. He mentioned a severe case in which the patient had got well under absolute rest in the open air with the use of a spray of cocain and resorcin, followed by orthoform.

Dr. PERMEWAN (Manchester) thought the time had come for each man to state clearly and exactly, first, the methods he employs, and, secondly, the results of those methods. It was useless to talk vaguely of surgical treatment unless one defined clearly what one meant by it. For his own part, Dr. Permewan had never used thyrotomy, nor had he used cutting operations within the larynx. His experience had been limited to (1) palliatives—*e.g.*, morphia insufflations; (2) lactic acid; (3) curetting by Heryng's curettes. As to results, he had found most cases improved, some made worse, and a few cases cured. The favourable cases, he thought, were those of localized ulceration or outgrowth. The unfavourable ones were those in which there was general infiltration or much swelling.

Apart from surgical interference, rest was of great importance; but he did not go to the length of insisting on the avoidance of even whispering. It was important to avoid loud speaking, and in particular to soothe an irritable cough. As regards the meaning of the word "cure," he did not think we ought, as suggested by StClair Thomson, to include in that word the arrest of disease on the lung. It was enough for our present purpose to limit that expression to the arrest of disease in the larynx.

Dr. DONELAN desired to support the views of Drs. de Havilland Hall and Permewan. At one time he considered the use of lactic acid indispensable in every case, but there were other drugs which could be recommended as useful. For some years he had also employed guaiacol in the form of pigments, sprays, and submucous injections, and had introduced a special form of aseptic laryngeal syringe for the last-mentioned purpose.

Further experience, especially of those cases which were practically under constant observation in hospital and private practice, had convinced him that in the majority, and certainly in all cases in which the ulcers are still superficial and in which there is little infiltration, the use of lactic acid or of submucous injections, except at the commencement of treatment, may be dispensed with as causing unnecessary suffering. He had found the submucous

injections most useful in subglottic thickening ulcers on the ventricular bands and in the case of the obstinate ulcers that occur in the interarytenoid fold. In other cases he had discontinued the use of submucous injections. He had come to the conclusion that in the larynx more than elsewhere nature tends to limit the progress of the disease, and that while more severe measures may perhaps be deemed applicable as a forlorn hope in desperate cases, in others nature needs little more than the help of rest and cleanliness.

It should be the duty of the physician to see that, as far as he is concerned, every case should be an early case, and frequent examination of the larynx, especially if there is much cough and expectoration with plentiful bacilli, is to be recommended. Even where there is yet no sign of invasion of the larynx it is a good plan to regularly spray it with an antiseptic solution as a prophylactic.

When the larynx has been attacked he had made it a practice to supply each case with a writing-pad and pencil, not so much with a view to inculcate absolute silence as to impress on the patient the necessity of giving the parts as much rest as possible. Cleanliness is best attained by spraying the larynx with an antiseptic solution as often as possible, especially in the morning, after the usually more severe cough and expectoration, as well as after meals. Patients soon acquired the power of spraying their own larynges, or when they were too weak an intelligent nurse could do so. The medical attendant should after similar cleansing apply lactic acid, resorcin in orthoform, or guaiacol in paroleine. Dr. Donelan said he began with lactic acid, and after a few days used guaiacol, "according to Chappell's formula, as he found the flavour of gualtheria was liked by most patients. It was wonderful to observe the good effects of even a few days' persistent treatment of this sort, especially in the early cases and in those who had previously suffered from the most intense dysphagia. It was not enough to apply the lactic acid, guaiacol; or other favourite antiseptic once or twice a week; it must at first be applied once or twice, or more often in the day if necessary. What was needed was the persistent maintenance of the effect produced by the cleansing and stimulation of a part which, owing to its rich vascularization, was better provided with the means of self-healing, notwithstanding the concurrent anæmia, than any other part of the body, but which was constantly exposed to reinfection from the lungs. Such treatment was unfortunately not generally at the disposal of poor patients, but he hoped the time was not far

distant when these cases would all be gathered into institutions where the early invasion of the larynx could be checked.

With regard to the results as regards cure, he had no cures to report if cure meant the complete recovery of the patient. Every case had ended fatally from the pulmonary or intestinal complications. As regards local cure, he had several cases in which the larynx had become healthy, and remained so for several months until death took place from other causes. Amongst these he particularly desired to refer to the first case in which he had employed submucous injections. The injections were used only during the first two weeks of treatment, but the good effect was maintained during a period of nearly four months, when the patient died of the pulmonary disease. This case was referred to at the meeting of the Laryngological Society of London, at which Dr. Donelan's submucous syringe was exhibited, and the healthy state of the larynx up to the time of death was verified by a former President of the Society.

He did not propose to discuss the various operative measures which had been suggested, as in his experience, when what appeared to be considered the indication for such interference was present, the most humane thing to do was to make the patient as comfortable as possible while life remained, and to avoid operations.

Mr. MILLIGAN said that he had had no experience of the heroic surgical measures which some surgeons advocated in the treatment of laryngeal tuberculosis. The cases which had come under his notice he had treated by such measures as curetting, rubbing in of lactic acid, and the employment of various antiseptic remedies. He did not regard radical surgical measures as likely to lead to any very permanent results, as it had to be remembered that in almost all cases of laryngeal tuberculosis there was concomitant disease within the lung, which would naturally reinfect the larynx. He had had one case in which he had performed a thyrotomy for laryngeal tuberculosis. The patient had very marked laryngeal disease and very slight disease of the lung. The result was not very gratifying, although the patient was alive and moving about, but since the operation the disease in the lung had slightly increased. This of course might not be due in any way to the operation. He wished to endorse what Dr. de Havilland Hall had suggested—that at a meeting of the Laryngological Society definite statements and definite statistics should be brought forward, so as to give them a basis upon which to form opinions as to the value or otherwise of the various methods of treatment.

Dr. BRONNER said that his own experience of laryngeal tubercu-

losis had been comparatively small, but in the cases which had come under his care he had had good results from formalin as a spray or pigment. He thought orthoform deserved to be more extensively used, as it was non-toxic, and patients could apply it themselves.

Dr. N. C. HARING (Manchester) said: The natural course of laryngeal tuberculosis, like that of tuberculous affections in any part of the body, was an intermittent one, presenting stages of rapid progress and arrest; and it was due to this intermittent progress of the disease that it became difficult to assess the exact value of any particular line of treatment.

Where the tuberculous deposit existed in circumscribed masses or in the papillomatous form, there was no doubt that total excision of such diseased portions, where practicable, was of benefit to the patient; but, bearing in mind the fact that the whole process was a struggle of bacillary invasion against the resistance of the tissues, any line of treatment which will further weaken this resistance was to be deprecated. Puncturing, scraping, and the introduction of irritants was more likely to do harm than any good. Our main reliance must be upon the general treatment of the patient, and only a secondary value given to local treatment. Still, orthoform for dysphagia, reduction of cough by sedatives, intralaryngeal injections of mild antiseptics, such as menthol, etc., were not to be neglected.

The laryngeal affection did not always run a course *pari passu* with the pulmonary condition.

Mr. C. A. PARKER (London) thought that the larynx should be cocaineized before applying a lactic acid, not only with the object of allaying pain—as pointed out by Dr. de Havilland Hall—but also so as to be able to apply the acid with greater exactitude, and especially with the object of avoiding bruising. The larynx being anæsthetized, it was Mr. Parker's habit to apply at once pure lactic acid. He did not think there was any fear of too great an inflammatory reaction—in fact, the difficulty often was to get sufficient reaction, and if lactic acid failed in this respect, he recommended the application of pure chromic acid. He had found this very useful in cases which did not improve with lactic acid.

As regards cases suitable for operation, he thought the question as to whether the whole disease could be removed was important. He divided cases into four different classes: (1) Local tumours; (2) ulceration with limited œdema; (3) extensive œdema with little ulceration; and (4) extensive ulceration and œdema. It was doubtful whether local tumours should be operated upon, but

seeing that sooner or later they generally broke down and caused a rapid extension of the disease, it was advisable to remove them in such cases in which it was possible to get the whole tumour away. Ulceration with localized œdema were the picked cases for operation. Scraping and the application of lactic acid gave satisfactory results. Mr. Parker could think of three cases in which patients had remained cured for over three years. In extensive œdema with little ulceration the less that was done locally the better for the patient, and in the final stage of extensive œdema and ulceration the treatment must be purely palliative.

Dr. Milligan had suggested the difficulties caused by reinfection of the larynx from the lungs. Mr. Parker thought that occasionally a healthy lung or a quiescent lung might be reinfected from the larynx, and consequently attention to the larynx was important.

Dr. G. C. WILKIN narrated a case of laryngeal phthisis in the early stage, in which the arytenoids were swollen and the false cords thickened; it was treated first by insufflation of morphia. This failed to relieve the distressing and almost incessant cough. Menthol then was insufflated, at first in small quantities, now in large, for two years or more. This insufflation had invariably given relief, and speaking from a general practitioner's point should, he thought, be much more generally adopted.

The PRESIDENT remarked that it was obvious that general treatment should be carried on with the local treatment of laryngeal tuberculosis, and he did not suppose that anyone would expect to cure the disease in the larynx whilst active changes were present in the chest.

With regard to the relief of pain, he had obtained great relief by the insufflation of morphia or heroin mixed with sufficient bismuth or starch to make a vehicle. Sedative applied in this manner had a local rather than a general effect, and comparatively large doses were in consequence well borne.

There was a very simple method of relieving odynphagia which deserved to be better known. It was applicable in the disease under discussion as well as in scarlet fever, measles, diphtheria, or any other affection attended with painful swallowing. The method was as follows: Place the palm of each hand with the fingers pointing upwards over the ears on the corresponding side, and then make very firm pressure whilst the patient was swallowing. The greater the pressure the greater the relief to the pain. It was best to stand behind the patient whilst making the pressure.

Dr. MIDDLEMASS HUNT, in replying, did not agree with Dr. Thomson that the discussion on this subject was so unsatisfactory.

They could often relieve suffering, and so prolong life. He recalled several cases of cure, one a very bad one, last treated twelve years ago, in which there was complete arrest, in a man in whom both testicles had been removed for tubercle, so that there was no doubt of the diagnosis.

Dr. BARCLAY BARON, in his reply, agreed heartily with the various speakers in insisting on the value of rest. He laid great stress, up to the ulcerative stage, on avoidance of over-use of the voice, and also shielding the larynx from inhalation of irritating substances. The risk of this varies in different districts, according to the trades and manufactories carried on. He considered the idea of rest was not carried out if, along with enjoining absolute silence on the part of the patient, we stabbed the tissues deeply by means of a needle, as in submucous injections. In the pre-ulcerative stage we had to build up tissue resistance. An inflamed tissue, he pointed out, was a weakened one; it was therefore better not to run the risk of setting this up. Seeing how small was our chance of doing good by directly destroying bacteria, it was unwise to abrade the surface.

In reference to Dr. Baron's reply, Dr. DONELAN explained that he now rarely used submucous injections, having come to the same conclusions regarding them as Dr. Baron.

Mr. RICHARD LAKE thought one year's freedom might be considered cure. Limited swellings were, in his opinion, suitable for operation, even before there was any breach of surface.

PRACTICAL POINTS IN THE TREATMENT OF NASAL SUPPURATION, ESPECIALLY OF THE ACCESSORY SINUSES.

By JOHN MACKIE, L.R.C.P. ED. (Nottingham).

THOUGH it may not be correct anatomically, it is perhaps more convenient clinically, to dissociate disease confined to the middle turbinal from disease of the ethmoid cells, and to connect it more with allied conditions about the lower turbinal.

Adopting this method, my list of 70 cases comes out as follows: Ethmoid: single, 19; double, 24—43; antrum, 11; frontal, 7; sphenoid, 9; middle turbinal, 14; lower turbinal, 6.

I have given polypi and ozena columns, which show polypi present in 31 out of 70 cases, and ozena in 9.

The ethmoid cases will be seen greatly to predominate. This is not an experience confined to one year's work, and I have long been at a loss to understand the frequent statements that disease of the antrum is more common than that of the other sinuses. With very few exceptions, the ethmoid cases are associated with polypi.

There are only 11 antrum cases. As to the causation of these, I strongly suspect that we attach too much importance to dental mischief, and that the specific fevers and, more particularly of late years, influenza is responsible for far more cases than diseased teeth.

In the sphenoid cases, as a rule, I have been unable to fix a beginning or trace a cause. In Case 49 the history given by the patient is interesting. B. I., aged thirty, says that three years ago he was seized with an acute illness; his throat got made up, his face swollen, he could not swallow. His medical man, evidently suspecting a quinsy, made incisions in the neighbourhood of the tonsil, but failed to find pus. The patient was ultimately relieved by a violent fit of coughing, in which he expectorated a large quantity of foul pus. The swelling at once subsided, and relief was obtained. This, of course, looks very like the course of an ordinary quinsy, but ever since then this patient has had daily fits of coughing, with the free expectoration of brown pus, often blood-stained. His medical men have generally been able to satisfy themselves that there was sufficient lung mischief to account for these symptoms, and the patient has been treated with all the pomp and circumstance of a modern consumptive. I can, however, now demonstrate that this pus comes from the sphenoid, and I have no reason to suspect any other origin for it. Mistakes such as this are, I believe, not infrequent, not in sphenoid disease alone, but in other sinus suppurations. It will be noted that ozena is present in most of the sphenoid cases, and in all cases of ozena I think it would be well for us to satisfy ourselves as to the condition of these cells. Case 5 bears on this point. A. G., aged thirty-six, a young man in a good commercial position, for some time had found himself unequal to his work. He distrusted his capacity, got melancholic, and contemplated suicide. When seen by me he had unilateral ozena and pus in his pharynx. From the wasted condition of his middle turbinal I had little difficulty in diagnosing sphenoid disease and establishing free drainage. He got immediate relief, his mental condition and business capacity at once improved, and he was soon able to resume his old position in his firm, a position which some time before he had been obliged to resign for one less responsible and less remunerative.

There are 14 cases which I have classed as due to local conditions about the middle turbinal. In these I have not found headache, mental and nervous disturbances, less marked than where the sinuses are involved. On the contrary, it has seemed to me that a blocked upper nares (from enlargement, cystic or otherwise, of the middle turbinal) is very prone indeed to set up nervous disturbance. This, I take it, may be due chiefly to pressure in a sensitive neighbourhood through the blocking of the anterior outlet from the upper passages, and the diverting of a trickling discharge into the pharynx brings its own train of consequences.

The following case may be taken as an example of what I speak of: Case 44. M. L., aged thirty-two, for five years suffered from headache, spasmodic cough, and phlegm in the throat, with feverish attacks about once a month, simulating influenza. The relations were anxious, and the ingenuity of the family doctor was strained to its furthest limit. The patient's bedroom became a museum, in which was collected all that is marvellous or impressive in the way of sprays, douches, and temperature-takers, over which indulgent relatives presided with unremitting enthusiasm. I found the patient with a blocked upper meatus with trickling into the pharynx. I removed the swollen and granular anterior end of a cystic middle turbinal. Almost immediately her symptoms disappeared, and when I last saw her she was a ruddy, healthy woman.

The following case, No. 35, was, I expect, one of coryza caseosa, described by McBride and others. Mrs. E., aged thirty-three, had suffered for several years with a stuffed nose, with occasional blasts of offensive odour, but with no very marked or persistent discharge. I found a mass of nodulated, granular-looking material blocking the upper part of the right nares, into which a probe passed with only slight resistance. I removed the whole mass with a hooked curette, letting loose one of the vilest smells I have ever experienced. The removed material was for the most part grayish-white, and of the consistence of over-ripe cheese. The cure was immediate and complete.

In a few instances the focus of disease was in the lower turbinal. One case, No. 9, is interesting as bearing on the relationship between pus and polypi. W. C., aged forty, consulted me about a blocked nose and purulent discharge. I found a large polypus growing into the post-nasal space. This I removed with difficulty owing to the prominence of the posterior half of the lower turbinal. Wishing to secure more than temporary relief, I removed a bulging mass of turbinal (which was exhibited; the incurved surface pre-

sented a mass of small polypi). As I satisfied myself that there was no antrum disease to communicate with the inferior meatus, I think we may take this as a case of nasal polypi occurring without sinus disease.

With regard to the cases complicated with ozena, I may mention that three of these—Nos. 46, 59, and 60—I had treated two or three years ago for ozena as a primary disease. In the case of No. 60 I, however, find noted in my case-book a suspicion of deeper mischief; but whether in these cases the ozena or the sinusitis was the primary cause I cannot say.

Treatment.—In this list of cases, coming under observation during the past twelve months, it is, of course, impossible to estimate the proportion of cures. In a considerable number I can, however, claim such a result, while in those under treatment the progress is decidedly in that direction.

With the methods of treating nasal suppuration now adopted, I think we can almost promise our patients a cure, provided they are faithful and continue with us to the end; and I am not aware of any disease in which we can rely more on the steadfast co-operation of the patient than in chronic nasal suppuration. The symptoms are so distressing, the result of treatment so marked, that it is the rarest thing for them to grow weary or to fall out by the way.

I do not think that in the earlier stages of treatment much is gained by an over-minute regard for anatomy, nor even by any great anxiety as to an exact diagnosis. If you have a chronic discharge of pus from the nose, which persists after free drainage has been established by the removal of granulations, polypi, or bony obstructions, in treating for a cure there is only one course left to us—we must lay open the diseased parts. In doing so, provided we keep in clear view the position of the brain and orbit, and provided always that we keep in the path of the pus, there must be only slight danger of accidents. In a long-standing case—say of ethmoid disease, with granulations and polypi—the hesitating and timid hand is not likely to meet with much success. To remove what is often a huge mass of disease, free and vigorous treatment is necessary. This cannot well be carried out under cocaine, while chloroform and ether are inconvenient in many ways. For some time I have used ethyl chloride in this work. I have found it to give in point of time sufficient anæsthesia for all requirements, while it seems free from danger, and after its use your patient gets up and walks away with no bad effects. I would certainly say that the use of ethyl chloride has helped me more

than anything else towards a satisfactory and successful treatment of disease of the nasal sinuses.

With pus in the middle meatus, the focus of disease may lie in the middle turbinal itself or, practically speaking, in any of the sinuses, in any combination of them, or in them all. That being so, we are little likely to meet with striking success if we do not in the first instance establish free drainage in this region. When that is done, if the flow of pus continues at longer or shorter intervals, according to the necessities of the case or the convenience of the patient, the disease must be followed up with the punch forceps or curette. By avoiding undue haste in treatment, and by allowing time for the healing process between our operations, I think we are able to conserve healthy parts, which by more precipitate measures may be swept away.

In ethmoid and frontal trouble, the necessity for a thorough clearance of the middle meatus is obvious, but I doubt if the same necessity is always recognised in antrum suppuration. To those of us who can recall the difficulties attending earlier and less methodical work in this region, it is now a pleasure to find how quickly an opened antrum will clear up when thorough drainage has been established through the natural opening.

A. H., No. 60, had been treated elsewhere for antrum empyema for over six months. The discharge continued foul and copious, though irrigation was being well carried out with hydrogen peroxide and other solutions. I enlarged the opening in the canine fossa, removed the anterior end of the middle turbinal, and cleared out a blocked middle meatus, and was able to send the patient home at the end of a month, some days quite free from discharge. This young lady suffered from unilateral ozena. In passing through Nottingham recently, she called on me. I then found no ozena, and for over a month she told me she had neither crusts nor smell.

It is not alone that drainage is not so free, but with disease in the middle or upper meatus you may have the antrum filled from above and acting as a reservoir. I actually found this taking place in one or two of my cases.

In all my frontal cases the ethmoid cells were also involved; and whether in frontal disease it is the proper treatment to open the sinus from the outside, as some claim, or whether it is possible, as doubtless many of us have found, to secure a good result from intranasal treatment for success either way, it is certainly essential to clear out the diseased ethmoid cells. If this has been done, and pus comes from the frontal opening, by careful curetting and

DR. MACKIE'S TABLE OF CASES OF TREATMENT OF NASAL SUPPURATION.

	Age.	Duration.	Ethnicity.	Interim.	Frontal.	Sphenoidal.	Middle Turbinal.	Lower Turbinal.	Polypus.	Ozena.	Treatment.	Remarks.	Results.
1	R. L.	24	3 years.	R. L.	—	—	—	—	R. L.	—	Forceps and curette.	Case gave very little trouble.	Cured.
2	S. Mrs.	40	4 "	R.	R.	—	—	—	—	—	Clear middle meatus; open antrum.	Frontal still draining; headache and other symptoms gone.	
3	IL. Mrs.	34	15 "	—	—	—	—	—	—	—	Open canine fossa.	Did well; patient has insisted on keeping in the tube.	
4	C. F.	30	4 "	R. L.	—	—	—	—	R. L.	—	Curette and forceps.	This patient I had treated by the snare for years.	"
5	G. A.	36	5 "	—	—	R.	—	—	—	R.	Open and irrigate.	Melancholia and loss of business capacity.	Cured; slight non-fetid ozena still.
6	F. Mrs.	45	2 "	—	—	R.	—	—	—	—	Forceps and irrigation.	Headache and nervous disturbance.	Cured.
7	S. A.	18	7 "	—	—	—	R. L.	—	—	—	Turbinectomy.	Discharge profuse; treated for phthisis.	"
8	L. Mrs.	21	8 "	R. L.	—	—	—	R.	L.	—	Snare, forceps and curette.	Marked constitutional disturbances.	"
9	C. W.	40	9 "	—	—	—	—	R.	R.	—	Turbinectomy.	Specimen with attached polypi shown.	"
10	B. Mrs.	27	3 "	R. L.	—	—	—	—	L. R.	—	Forceps and curette.	Required a general anesthetic each operation.	Cured I believe.
11	A. Mrs.	31	12 "	R.	—	—	—	—	—	R.	"	Ozena has completely disappeared here.	Cured.
12	R. S.	35	15 "	L.	—	—	—	—	L.	—	"	Only seen three times; seemed free on last visit.	

DR. MACKIE'S TABLE OF CASES OF TREATMENT OF NASAL SUPPURATION—continued.

	Age.	Dur- ation.	Eth- moid.	An- trum.	Front- al.	Sphen- oid.	Little Turbin- al.	Lower Turbin- al.	Polyp- us.	(Ozen- a).	Treat- ment.	Re- marks.	Re- sults.
13	F. K.	36	5 years.	—	—	—	—	L.	—	—	Removed papil- lomatous growth last September.	I have just seen this case (July) with polypi in left middle turbinal region.	
14	G. M.	36	4 "	L.	—	—	—	—	—	L.	Forceps, curette, irrigation.	General ill-health.	Improved.
15	T. E.	32	Years.	R. L.	—	—	—	—	R. L.	—	Snare, forceps, curette.	General health wrecked; improvement marked, but frontal still dis- charging slightly.	
16	R. E.	23	"	R. L.	R. L.	R. L.	—	—	—	R. L.	Irrigation and spe- cific treatment.	Not deemed suitable for surgical interference.	Relieved.
17	W., Mrs.	37	5 years.	—	—	—	R.	—	—	—	Bone cyst broken up; passage freed.	Headache.	
18	W., Mrs.	26	3 "	—	—	—	R.	—	—	—	Turbinectomy.	Discharge in pharynx most troublesome.	Cured.
19	H. A.	21	Years.	R. L.	—	—	—	—	R. L.	—	Forceps and curette.	Antrum mischief only made out later (July 5).	
20	S., Mrs.	25	"	—	—	—	L.	—	—	—	Turbinectomy.	Pharyngitis.	Relieved.
21	T., Mrs.	?	"	R. L.	—	—	—	—	R. L.	—	Snare, forceps, curette.	Marvellous improve- ment in general health.	Cured.
22	S., Mrs.	30	4 years.	—	—	—	L.	—	L.	—	Forceps and snare.	Bone cyst with enclosed polypi.	"
23	L. A.	11	2 "	R. L.	—	—	—	—	—	—	—	Sent for opinion.	
24	L. A.	24	6 mos.	R.	—	—	—	—	—	—	Disappeared.	Again turned up (July 14); says he has been unsuccessfully treated by herbalists mean- while.	

DR. MACKIE'S TABLE OF CASES OF TREATMENT OF NASAL SUPPURATION—continued.

		Age.	Duration.	Ethmoid.	Maxillary.	Frontal.	Sphenoid.	Middle Turbinal.	Lower Turbinal.	Polypus.	Osseous.	Treatment.	Remarks.	Results.
25	L. A.	28	3 years.	—	—	—	—	L.	—	L.	—	Forceps.	Middle turbinal dis- tended by cyst, block- ing upper meatus; dis- charge into pharynx.	Cured.
26	J. C.	23	4 "	R.	—	—	—	—	—	—	—	Forceps and curette.	From a distance; only seen once.	
27	L., Mrs.	32	6 "	R. L.	L.	—	—	—	—	R. L.	—	Forceps and curette; antrum opened.	Troublesome case, but nose now free, and only slight discharge from antrum.	
28	S. B.	30	Years.	—	—	—	—	R.	—	—	—	Turbineotomy.	Chronic pharyngitis.	Relieved.
29	H. E.	22	4 years.	R. L.	—	L.	—	—	—	R. L.	—	Forceps and curette.	Pain relieved; health improved; slight dis- charge from frontal.	
30	W., Mrs.	?	Years.	R. L.	—	—	—	—	—	R. L.	—	" "	Bone cyst in left.	Doing well.
31	W. M.	31	"	R. L.	—	—	—	—	—	R. L.	—	—	Case sent for opinion.	"
32	S., Mr.	32	"	R. L.	—	L.	—	—	—	R. L.	—	Forceps and curette.	Still under treatment.	
33	H., Mrs.	37	3 years.	L.	L.	—	—	—	—	—	—	Forceps and curette; antrum opened twice.	Troublesome case, but now practically well.	
34	T. A.	18	4 "	—	—	—	—	R.	—	—	—	Turbineotomy.	Atrophic pharyngitis.	Improving.
35	E., Miss	33	Years.	—	—	—	—	R.	—	—	—	Removed granular fetid mass from middle meatus.	Rhinitis caseosa, I pre- sume.	Immediate relief.
36	S., Mrs.	?	?	—	—	—	—	L.	—	L.	—	Forceps and curette.	Cystic middle turbinal.	Cured I believe.
37	B. J.	26	?	R.	—	—	—	—	—	—	—	Forceps.	Have only note of one visit.	
38	S., Mrs.	37	6 years.	R. L.	—	—	—	—	—	R. L.	—	Forceps and curette.	Treatment for cure de- clined.	Relieved.

DR. MACKIE'S TABLE OF CASES OF TREATMENT OF NASAL SUPPURATION—continued.

	Age.	Duration.	Ethnicity.	Antrum.	Frontal.	Sphenoid.	Middle Turbinal.	Lower Turbinal.	Polypus.	Ozena.	Treatment.	Remarks.	Results.
39	L., Mrs.	34	3 years.	R.	—	—	—	—	R.	—	Forceps and curette.	From a distance; no after history.	
40	G., Miss	29	1 year.	—	—	—	R. L.	R. L.	—	—	Irrigation and general treatment.	Attacks of vasomotor; rhinitis, with exophthalmos.	Seen only twice.
41	T., Mrs.	30	16 years.	—	—	—	L.	—	—	L.	Forceps, irrigation.	Ozena and headache.	Relieved.
42	B., Mrs.	42	Years.	R. L.	—	—	—	—	R. L.	—	Forceps and curette; antrum opened.	Headaches; general health wrecked.	Cured; tube still in antrum.
43	K., Mr.	35	20 years.	L.	—	—	—	—	L.	—	Forceps, curette, irrigation.	Headaches (intense) relieved; frontal discharge sometimes absent for days.	
44	M. L.	32	5 "	—	—	—	R.	—	—	—	Forceps, curette, pharynx.	Spasmodic fits of coughing, thought due to chest.	Cured.
45	H., Mrs.	45	Years.	—	—	L.	—	—	—	L.	Will only submit to irrigation.	—	"
46	W., Mrs.	29	12 years.	L.	L.	—	—	—	—	—	Forceps and curette.	Seen years before for ozena; no discharge; frontal seems cured.	"
47	D., Mr.	37	Years.	R. L.	—	—	—	—	R. L.	—	" "	—	Cured I believe.
48	D., Mrs.	26	"	L.	L.	—	—	—	R. L.	—	" "	Marked improvement; still under treatment.	
49	B. J.	30	3 years.	—	—	R.	—	—	—	—	Sent for opinion.	Can blow out pus through cannula; further treatment declined for present.	
50	S. J.	37	?	L.	—	—	—	—	L.	—	Snare, forceps and curette.		

DR. MACKIE'S TABLE OF CASES OF TREATMENT OF NASAL SUPPURATION—continued.

	Age.	Duratio <i>n</i> .	Eth <i>nic</i> .	In <i>tra</i> na <i>l</i> .	Front <i>al</i> .	Sphenoi <i>d</i> .	M <i>iddle</i> Turbi <i>na</i> <i>l</i> .	Lower Turbi <i>na</i> <i>l</i> .	Poly <i>pus</i> .	O <i>zena</i> .	T <i>reat</i> me <i>nt</i> .	R <i>emark</i> s.	R <i>esult</i> s.
51	H. A.	?	R. L.	—	—	—	—	—	R. L.	—	Share, forceps and irrigation for month.	Not seen again.	
52	R., Mr.	34	R. L.	—	—	—	—	—	R. L.	—	Curette and forceps.	Huge masses removed.	Seems cured.
53	M., Mr.	21 3 years.	—	—	—	L.	—	—	—	L.	Middle turbinal removed; irrigation of sphenoid.	Marked improvement.	
54	M., Mr.	42	R. L.	—	—	—	—	—	R. L.	—	Share and curette.	Nose completely blocked; now clear of polyp, but slight discharge from sinuses.	
55	S., Mrs.	55	—	L.	—	—	—	—	—	—	Opened through canine fossa.	—	Doing well. Cured.
56	M., Mr.	47 20 years.	L.	—	—	—	—	—	L.	—	Forceps and curette.	An old patient of Sir M. Mackenzie's.	
57	M., Miss	21 8 "	R. L.	—	—	—	—	—	R. L.	—	" "	Asthmatic, health much impaired; now greatly improved; asthma cured.	
58	W., Mrs.	19	—	—	—	—	R.	—	—	—	Wishes to try irrigation for two months.	Middle turbinal blocking whole upper nares.	
59	W. A.	23 5 years.	L.	—	—	L.	—	—	—	L.	Forceps, eurette; sphenoid opened.	Treated for ozena four years ago.	Relief marked and im- mediate.
60	H., Mrs.	29 6 "	L.	L.	—	—	—	—	—	L.	Middle meatus cleared; irrigation; opening into antrum made elsewhere enlarged.	Antrum doing well; ozena gone.	

DR. MACKIE'S TABLE OF CASES OF TREATMENT OF NASAL SUPPURATION—continued.

	<i>Age.</i>	<i>Duration.</i>	<i>Ethmoid.</i>	<i>Infrum.</i>	<i>Frontal.</i>	<i>Sphenoid.</i>	<i>Middle Turbinal.</i>	<i>Lower Turbinal.</i>	<i>Polypus.</i>	<i>Osseous.</i>	<i>Treatment.</i>	<i>Remarks.</i>	<i>Results.</i>
61	S., Miss	35	Years.	L.	—	—	—	—	L.	—	Forceps.	Right side been treated and cured in London.	Cured.
62	R., Mr.	33	4 years.	R. L.	—	—	—	—	R.	L.	Forceps and curette.	Headache, depression, loss of business capacity.	Doing well.
63	W., Mrs.	27	"	R. L.	—	—	—	—	R. L.	—	" "	Headache marked symptom.	Immediate improvement.
64	W., Mrs.	43	"	—	—	—	L.	—	—	—	Forceps.	Blocking and pressure marked; sent by oculist.	Improved.
65	W. J.	65	4 mos.	L.	—	—	—	—	—	—	Forceps and irrigation.	Began acutely with eye symptom and much pain.	Nearly well.
66	H. L.	25	3 years.	—	—	—	—	R.	—	—	Removed posterior end.	Pharynx twice curetted elsewhere.	Cured.
67	S. M.	20	"	R.	—	—	—	—	—	—	Sent for opinion.	Enlarged thyroid and exophthalmos.	Under treatment.
68	S. L.	18	"	—	—	R.	—	—	—	—	Forceps; middle turbinal removed.	Began with measles.	
69	L. J.	47	Years.	R. L.	—	R. L.	—	—	—	—	Treatment deferred.	History of discharge since childhood.	
70	C. M.	22	6 mos.	—	—	—	—	—	R.	—	Antra opened and drained through sockets of injudiciously stopped teeth.		

irrigation I maintain you may cure these cases. Certainly in many you relieve the pain and reduce the discharge to a minimum, and it is questionable whether in the average case we had not better be content with this result than run the risk of an external operation, and perhaps the disfigurement of a fair young face. In one case, which I find I have omitted from my list, where the pain was excessive, and where I failed to relieve it by intranasal measures, I performed the external operation described by Mr. Tilley, with most satisfactory results.

These remarks are the result of an experience gained apart from the great centres of medical study and discussion, and to most here they must appear crude and commonplace, but I hope that they may be accepted as an earnest of honest effort.

CASE OF MASTOID ANTRUM SUPPURATION COMPLICATED BY AURAL EXOSTOSIS, AND TWO CASES OF FRONTAL SINUS SUPPURATION.

BY HERBERT TILLEY, M.D., F.R.C.S.,

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THE patient was an old lady, aged sixty-five, who for some forty years had been subject to constantly recurring discharge from the right ear. She has no knowledge as to the original cause of the trouble, but remembers consulting Mr. Peter Allen when she was twenty years of age, and was then told she had "a hole in her drum, and that the passage was getting narrow." For twenty years she had been in the habit of daily probing the passage with the blunt end of a needle. There was occasionally a slight discharge of blood, and at other times a purulent discharge which would continue or cease for weeks together.

On March 4, 1901, I was asked to see her in consultation on account of severe pain in the ear which she had been experiencing for some three or four days and nights. The temperature was between 100° and 101°. On examination the right auditory meatus was so narrowed that it would not admit the finest probe, and it was obvious that the obstruction was mainly due to a large bony exostosis occupying the posterior wall of the meatus. There was no œdema over the mastoid, but pain was produced by deep pressure on the bone. There was undoubtedly a weakness of the lower half of the face on the right side, and a curious feature of the case was well-marked herpes of the meatus, pinna, and side of the face

extending upwards to the temporal region. There could be no doubt that it was a case for immediate operation, and more so because during the night (case was seen in the late afternoon) the facial paralysis became complete.

On the afternoon of March 5, the patient having been anæsthetized, I performed the ordinary complete mastoid operation, and as the meatus was originally so narrowed, and being aware that post-operative meatal atresia is so liable to occur in such cases, I made a particular point of insuring a large opening into the combined bony cavity by cutting away a large amount of the concha, so that I was easily able to insert my index-finger through what had originally been a pin-hole meatus. The posterior wall of the meatus was split longitudinally and sewn upwards to the post-aural skin-flap. The primary incision was sutured at the end of operation, and healed by first intention. The patient recovered without a symptom, but was much grieved because she "was sure people could see into her head through the large opening in her ear."

The after-history is interesting, in that almost complete atresia of the meatus has occurred in spite of the very large opening I made by removal of the concha, and the facial paralysis is just beginning (July 3) to show signs of improvement, in that power is returning in the lower muscles of the right side of the face.

This is the second case of post-operative meatal atresia which has occurred in my practice, and to my knowledge other aural surgeons have experienced similar difficulty. The atresia need only be feared as a post-operative complication when it exists beforehand, and Mr. Ballance has recently suggested that it may be got rid of by cutting away the narrowed part of the meatus and then skin-grafting the posterior part of the wound, so that the epithelium of the graft may unite with that of the cut edges of what remains of the meatal lining when the posterior half of the meatal circumference has been removed.

In the case brought forward to-day, I have advised the patient to pass a small probe, with gradually enlarging circumference, through the stricture at least twice a day. A skin-grafting operation was not proposed, as the patient is a great sufferer from angina pectoris, and prolonged anæsthesia was considered very undesirable unless absolutely necessary.

*Double Frontal Sinus Empyema presenting Unusual Features.—
Operation—Cure.*

Mrs. F——, aged forty-nine, came to me on account of severe frontal headaches and a purulent nasal discharge. The symptoms

had lasted for eight years, and some five years ago she was under my care, when I removed the anterior end of both middle turbinals in the hope of giving a free vent to the discharge from the sinuses. Anterior rhinoscopic examination showed a non-fetid purulent discharge in both middle meatuses and a few small polypi in the same situation. These were cleared away in the course of two or three sittings, and I then proceeded to carry out the radical operation on the right sinus.

On opening this cavity through the nasal incision below the inner third of the right eyebrow, pus at once escaped, and the cavity was seen to be filled by large polypoid granulations. Examination by means of a probe showed that the sinus septum was perforated, and the right fronto-nasal duct was so narrow that it would only admit a fine probe. Owing to the smallness of the parts around (the patient was a very small woman), I thought it would be wiser not to force a large passage into the nose, for fear of damaging the surrounding structures, but to thoroughly curette and disinfect both sinuses in the hope that this, with careful after-treatment, would suffice to produce a cure. In order to carry out the curetting of both sinuses from the right side, it was necessary to make a median vertical incision about 2 inches long, and join its lower end with the lower end of the supraorbital incision by means of a small transverse incision over the root of the nose. The included triangular flap of soft parts and periosteum was then turned upwards and outwards, and a considerable part of the anterior bony wall of the right sinus was removed, which allowed free access to the left sinus, the fronto-nasal canal of which was patent.

The sinuses were carefully curetted, disinfected with chloride of zinc, 40 grains to the ounce, and packed with iodoform gauze, the end of which was led out at the lower angle of the supraorbital incision. The median and transverse incisions were sutured at the end of the operation and healed by first intention.

My hopes of a rapid cure were doomed to disappointment, for after the first dressing it was obvious that the fronto-nasal canals were infecting the sinuses, and until they, or at least the left one, were curetted, we could not hope for improvement. The following week I opened the left sinus and curetted away granulations and pyogenic membrane, which obviously had not been reached from the right side during the previous operation. The fronto-nasal canal was enlarged and curetted, and the combined sinus centres disinfected and packed with iodoform gauze.

This was removed four days later, and its place taken by a

curved piece of silver wire passed from the external wound into the nose. Suppuration occurred in the sinuses again, and I felt that after all we should have to open up the right fronto-nasal canal, so that both sinuses should drain into their respective nasal cavities. However, after about ten days careful dressing twice daily the suppuration diminished, and the patient left the hospital with a small fistula in the left internal orbital angle, and I felt certain that we should in future have to operate again. Three weeks later she returned to my clinic with both external wounds firmly healed and retracted, and with no trace or purulent discharge in the nose. The headaches ceased immediately after the operation.

The case would seem to teach us :

1. That it is impossible to thoroughly deal with both frontal sinuses through an opening, however large, in one of them.
2. That however small a fronto-nasal canal may be, it would be wiser to enlarge it slightly and to curette it in order that it shall not re-infect the corresponding sinus when that alone has been operated upon.
3. That suppuration following the primary operation need not preclude an ultimately successful result if the case be diligently watched and suitably treated.

*Empyemata of both Frontal, Sphenoidal and Macillary Sinuses,
together with Suppurating Ear Lesions.*

Patient is a young lady, aged twenty-two, who for ten years has suffered from a purulent nasal discharge, repeated periods of nasal obstruction, and a feeling of weight and tension over the forehead, which precludes her joining in outdoor games or intellectual pursuits. During the period stated she has many times had nasal polypi removed, a treatment which has only produced temporary freedom of nasal respiration.

Examination showed both nasal cavities full of polypi bathed in pus, and the antral cavities were dark on transillumination. The teeth in both upper and lower jaws were nearly all carious and full of septic débris. It was quite easy to explore both sphenoidal sinuses, a manipulation which was followed by a discharge of pus from these cavities. Well-marked adenoids were also present.

On passing a cannula into the right frontal sinus and syringing through it, the boracic lotion containing a quantity of pus returned from the left nostril, showing that the sinus septum was perforated. The frontal sinuses were large ones, a deduction based on the abnormal distance to which a probe could be passed into them. A

large polypus was present in the right ear, while a purulent discharge issued from the attic of the left tympanum.

Under a general anæsthetic some carious teeth were removed on both sides, and the alveoli perforated and drainage-tubes inserted. The ethmoidal regions were curetted and the adenoids removed, together with the right aural polypus and the auditory ossicles on the side, which were found to be carious.

The treatment since the operation has consisted of bi-daily irrigation of the outer and nasal cavities with an alkaline antiseptic wash, and three times a week I have thoroughly irrigated the frontal sinuses with boracic lotion, followed by hydrogen peroxide, followed by iodoform emulsion. The discharge from all the accessory nasal cavities has diminished, and the patient is very much better in her general health, and is now taking a sea voyage.

It is scarcely necessary to add that such a treatment as this will not cure the disease, and the question arises, Are we to content ourselves with diminishing the discharge, and thus making the patient altogether more comfortable, or should we advise her to submit to some three or four radical operations on the nasal accessory sinuses, which, even if successful, must inevitably leave some slight scarring over the frontal sinuses, and as the patient is very fair, these would be more noticeable than in a person of darker complexion. It would be useless to curette the maxillary sinuses alone, because they would be reinfected by the discharge from the frontal sinuses. If the latter be operated upon, they must both be dealt with at the same operation, because they freely communicate. Such an operation would take the best part of two hours to complete, but there would be practically no risk from the operation itself.

EXPLANATION OF APPEARANCES IN SOME CASES OF ACUTE LACUNAR TONSILLITIS WHICH SIMULATE EXCAVATING ULCERS.

By DUNDAS GRANT, M.D., F.R.C.S.,

Surgeon to the Central London Throat and Ear Hospital.

OCCASIONALLY the medical attendant and friends of patients affected with acute tonsillitis are considerably alarmed by the appearance on the upper and posterior part of the tonsil of what appears to be a deep excavated ulcer of oval shape, the floor of which is covered with a white slough-like membrane. Such cases are often described

by the observers, and a very typical one came under my notice recently.

Mrs. Y—— came under my observation on July 4 complaining of intense sore throat. At the upper part of the right tonsil was a large excavation, the walls of which were covered with a white detachable exudate. A probe was introduced into this, and it could be seen that the exudation came from the mouths of small lacunæ in the tonsil tissue situated above and behind and below and in front of the opening. The appearance at the time was extremely alarming, but the lacunæ on the rest of the surface of the right tonsil, as well as on the left one, presented the appearance typical of lacunar tonsillitis. I looked upon the excavation as being formed by the furrow which normally exists in the tonsil in its postero-superior part, though probably in this particular instance rather larger than usual. The case was treated as one of simple lacunar tonsillitis, namely, by the administration of salicylate of soda corrected by the addition of bromide of potassium, and in a week's time every vestige of exudation had disappeared, and the patient was perfectly well.

This presents in an interesting way some points brought out by Killian in vol. vii. of *Archiv für Laryngologie*. He points out that in the new-born child the tonsil consists of three masses of tonsil tissue, between which are two furrows; the uppermost mass and the furrow next to it are the most persistent. The lower furrow gradually disappears, and the tissue which forms the bulk of the adult's tonsil is covered to a considerable extent by a triangular fold of membrane running downwards and backwards from the anterior pillar of the fauces. In the case above described the upper furrow is unusually patent.

Killian recommends for the better examination of the tonsil that the head should be turned towards the affected side, the tongue pulled out towards that side, and the opposite angle of the mouth retracted while the patient utters the sound "hay." In this position the tonsil is looked at more nearly from the middle line, so that the furrow and the marginal cushion (*Randwülst*) above and behind it can be readily recognised. This furrow is quite distinct from the supra-tonsillar fossa, the opening of which is above the anterior portion of the tonsil and between its apex and the uppermost part of the anterior pillar of the fauces. I have generally found it necessary to use a tongue depressor to enable me to see the tonsil satisfactorily by Killian's method.

I am not prepared to state that the cases of combined ulcerative tonsillitis described by Sendziak, or the chancriform tonsillar ulcers

described by Moure, consist simply of the natural excavation to which I am referring, but I think it extremely probable that the furrow has been frequently mistaken for excavating ulcers by others, as I believe they have by myself.

HYPERTROPHY OF THE ANTERIOR LIP OF THE HIATUS SEMILUNARIS.

BY DUNDAS GRANT, M.D., F.R.C.S.,

Surgeon to the Central London Throat and Ear Hospital.

WHEN the anterior part of the middle turbinated body is not very highly developed, and still more if, as the result of atrophic rhinitis, it is diminished in bulk, the groove of the hiatus semilunaris is often very plainly visible. More often it is concealed from view by its own anterior lip, which may form a fairly sharp ridge, shelving gradually towards the observer. This ridge, which is really the membrane covering the unciform process of the ethmoid, is sometimes the seat of considerable hyperplasia, and it very frequently comes in contact with the middle turbinated body, so that what is normally a groove is thereby converted into what is practically a tube leading more or less directly from the ostium of the maxillary sinus up to the frontal infundibulum. In extreme cases this hyperplasia is very considerable, and it may enlarge so as to form a rounded bolster-shaped swelling on the outer wall of the middle meatus, curving from above downwards and backwards so as to simulate an extra turbinated body. It is sometimes so rounded and so large that it may overgrow and acutely conceal the real middle turbinal, and present an appearance so like that body that it may be very readily mistaken for it, and indeed impossible to be distinguished from it by its ocular appearance, except in so far as the typical neck of the middle turbinal may seem to be wanting. By the use of the probe, however, that difficulty is removed, as it is then found impossible to pass this between the swelling and the side-wall as one could do if it were the middle turbinated body.

It is impossible to examine any very large number of noses without coming across this condition, but unless the singularity of the appearance and the nature of the swelling are kept before the mind, it is very apt to be overlooked; hence in studying the topography of the parts in any given nose it is essential to check the ocular appearances by means of the probe. The swelling I refer to

is to be distinguished from the soft boggy bulging described by Kaufmann as a lateral swelling, and which is usually associated with rarefying osteitis of the uncinate process, such as occurs in some cases of suppuration in the maxillary antrum. This is probably an effort on the part of the disease to make a wide exit for the pus into the nasal fossæ. In cases of ethmoiditis with the formation of multiple polypi, hypertrophy of the anterior lip of the hiatus is frequently present, and I have found that after the removal of as many polypi as possible, even after ablation of the anterior part of the middle turbinal, there are still remaining small polypoid growths, showing only a very slight translucent bulging on the outer wall. After removal of the hypertrophy of the anterior lip, I have frequently been able to effect the removal of such polypi which had previously been mechanically impossible. For the best means of removing this hypertrophy I am indebted to the writings of Professor Killian.

The growth, consisting of a sessile ridge or lappet, is naturally difficult to seize either with forceps or snare; but the difficulty is to be met by transfixing it at its middle part with the point of one blade of a pair of scissors, cutting it through and removing the lower and upper halves respectively by means of a snare. Instead of scissors I have sometimes used a sharp knife, as there is not always room for the passage of the unoccupied scissors blade; but it need hardly be said that the patient's head must be securely held whilst transfixion is effected, so as to prevent the possibility of the patient's head being jerked forward on to the point of the instrument, whereby the possible though very unlikely accident of penetration of the orbital cavity may be avoided.

ON THE REMOVAL OF TONSILS IN ADULTS.

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THE removal of tonsils in adults is by no means the simple matter that it is in children, in that it is much more liable to be followed by certain ill effects. It is my purpose briefly to discuss these sequelæ, and the means by which they may be prevented.

Besides the dangers attending all open wounds, tonsillotomy in the adult may have two special consequences, which are so common as to merit serious attention. The first is the danger of hæmor-

rhage, which may be severe enough to exhaust the patient, or to seriously menace life itself.

Although not unknown in childhood, it is certainly much more common in patients over fifteen years of age, and the tendency to it seems to increase with every year of life. Further, the larger the tonsil and the longer it has been enlarged the greater the danger becomes. In the large fibrous pear-shaped tonsils sometimes met with, the walls of the vessels in the neck of the tonsils will be found to be much thickened and embedded in fibrous tissue, and they neither retract nor contract when cut across. I do not think it is by any means too high an estimate to say that, with such tonsils in patients over twenty years of age, severe hæmorrhage will occur in one out of every three or four cases if cutting instruments be used; and by severe hæmorrhage I mean such as is sufficient to endanger life. With small tonsils the danger is much less.

The other risk attending the operation is the effect sometimes produced on the voice. Singers sometimes entirely lose their singing voice, and public speakers, teachers, etc., find that they are unable to speak so well or so long as before the operation, and that the use of the voice causes them a hitherto unknown aching feeling in the throat. This consequence of tonsillotomy in adults I have repeatedly met with, and I do not think it is generally sufficiently considered. The greater the enlargement and the longer it has persisted—that is, the more the patient has accommodated himself to the condition—the greater is the risk. A medical friend of mine had his tonsils removed a few years ago, and not only did he have most alarming hæmorrhage lasting nearly twelve hours, and ending only on faintness, but at the same time he entirely lost his singing voice.

The methods of removal may be conveniently grouped as follows:

1. Removal by means of caustics, including puncture with the electric cautery, the so-called igni-puncture.
2. Removal by cutting instruments, such as the tonsil guillotine or bistoury.
3. Removal with galvano-cautery or cautery knives.
4. Removal with the cold-wire snare.
5. Enucleation, or complete removal.

1. The method of *igni-puncture with the electric cautery* may be used to *reduce* enlarged tonsils. Under cocaine anæsthesia three or four punctures are made into each tonsil at one sitting, and the operation repeated on three or four occasions at about a week's interval between each. It gives rise to but slight pain at the time

and to little subsequent disturbance. After a few sittings the tonsils will be found considerably reduced in size, but subsequently shrinking takes place much more slowly, and the method is by no means to be recommended where complete removal of the tonsil is desired. It is suitable for cases of much enlarged tonsils where removal is not necessitated by recurring tonsillitis, and complete removal is undesirable for fear of injury to the voice. In such cases a few sittings will probably do all that is required without any bad effects.

2. Tonsillotomy should never be performed in adults with *very large* tonsils because of the danger of hæmorrhage. In certain cases, however, where the patient suffers from repeatedly recurring attacks of tonsillitis, the tonsils, although too small to be snared, can often be pressed well through the blade of the guillotine. In such cases the danger of hæmorrhage is not great, and enough tissue may often be removed to prevent recurrence of the tonsillitis. Moreover, in many of these cases the only alternative is enucleation, and this has its own disadvantages. The choice of operation must depend partly on the features of the individual case and partly on the wishes of the patient.

3. *Removal with the Caутery Snare*, etc., leaves a large charred wound in the throat with increased danger of infection, and of secondary hæmorrhage when the sloughs separate. It arrests all bleeding at the time, but there are other methods which secure this result quite as effectively, and are in other ways preferable.

4. *Removal with the Cold-wire Snare*.—This method is only applicable to cases of much-enlarged tonsils, but in these it seems to me to possess great advantages over all other means. The wire loop when tightened round the neck of the tonsil tends to slip over the outer convex surface of the tonsil, and thus almost enucleates it in many instances. Further, if the wire be tightened quite slowly all immediate bleeding is prevented, and as the raw surface left soon heals there is slight danger of secondary hæmorrhage. The operation, although more painful than cutting, is usually easily borne under cocaine anæsthesia, and, requiring no elaborate apparatus, can be carried out anywhere and everywhere. The one thing requisite is a snare, which permits of the wire loop, when once placed in position, being rapidly drawn tight, and which can then be screwed up slowly and with irresistible force. A snare I have had made seems to fulfil the above requirements,* and I have repeatedly used it with success.

5. Lastly, *enucleation*. An incision is made through the mucous

* *Vide British Medical Journal*, 1898, p. 893.

membrane between the anterior pillar of the fauces and the anterior border of the tonsil, through which the finger or a blunt instrument is introduced and the tonsil shelled out of its bed. This little operation is not at all difficult to perform if care be taken to keep *outside* the tonsil capsule, this being but loosely attached to the surrounding areolar tissue. It takes, however, a few minutes to complete, and a general anæsthetic is advisable. The advantages of this method are obvious.

(1) There is no risk of hæmorrhage, the vessels being torn across outside the tonsil where they are healthy.

(2) The tonsil is completely removed, a point of importance in cases of frequently recurring tonsillitis. When a tonsil is removed with the guillotine or with the snare the tonsil-crypts will be found open on the cut surface—that is, part of them has been left behind. Thus the danger of tonsillitis is not entirely removed, although of course greatly reduced.

(3) In some cases of flat tonsils there is no other practicable method.

In conclusion, I would urge that no one routine method should exclusively be employed in dealing with tonsils in adults. Much enlarged tonsils may be reduced in size by the galvano-cautery or removed with the cold-wire snare. Small flat tonsils may be removed with the guillotine or enucleated. Each case should be judged separately on its merits. The galvano-cautery has been so excessively practised by some, and the guillotine from its ease and rapidity so entirely used by others, that I have ventured to call attention to other methods, which, after repeated trials, I consider to be safer and more thorough in a large number of cases. In this paper I am treating entirely of adults. In children the guillotine is generally sufficient, although in rare cases other methods may be used with advantage. Thus I have used the snare successfully in cases where I have had special reason to fear hæmorrhage. It may be objected that I have exaggerated the frequency and danger of hæmorrhage, and that there are reliable means of arresting it. I venture to think, however, that in this instance prevention is better than cure.

SOME PRACTICAL POINTS IN CONNECTION WITH THE TECHNIQUE OF SKIN-GRAFTING IN MASTOID OPERATIONS.

By W. MILLIGAN, M.D.,

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IN order to have a satisfactory and permanent cure after the performance of a radical mastoid operation, it is necessary to secure the complete lining of the antro-tympanic cavity with a layer of healthy epidermis. That this is fraught with difficulty will, I think, be admitted by all surgeons who have had much experience in the performance of radical operations.

One of the main practical difficulties is the making certain that all disease has been removed. At first sight it would appear a fairly easy matter to say whether or not all carious foci had been efficiently scraped and cleared away, but practically such is not the case. The most careful operator will, I think, admit that at times his judgment upon this particular point has been found wrong, and that the subsequent behaviour of the wound has shown that foci of disease have been left which cause a continuance of suppuration and an incomplete healing of the bone wound.

In the performance of extensive mastoid operations a good light is essential, and will be found to show up small foci of disease which, without its aid, might easily be passed over. The thorough smoothing down of the bony walls of the cavity by means of burrs or osteotribes is also useful in helping to ultimately decide whether all disease has been removed or not. Especially is this the case when dealing with cholesteatomatous masses within the mastoid, when it is essential that all debris and all traces of the so-called lining membrane should be cleared out. Formerly the surgeon had to trust to the flaps made from the cartilaginous walls of the meatus for the growth of epithelial cells, which was ultimately to cover over the parietes of the antro-tympanic cavity. In many cases he was not disappointed in his expectation, for after some months of careful treatment by means of packing and the application of caustics to any exuberant granulation tissue, he found the cavity papered by a layer of shining and highly-refractive epithelium, which formed a healthy barrier of tissue between the cavity of the ear and the cavity of the cranium.

Frequently, however, this desirable result was not obtained. Much of the cavity, it is true, might be found covered; but such vulnerable parts as the inner tympanic wall and the receding antro-tympanic angle refused to epithelialize, and remained a

weeping and granular surface, ready to be reinfected and to be the starting-point of fresh disease.

In whatever way flaps were formed from the soft parts this incomplete epithelializing might result, and hence an element of uncertainty was bound to exist in the mind of the surgeon as to whether or not his operation would secure a complete arrest of suppuration.

The method of grafting the operation cavity proposed by Siebenmann was undoubtedly a step in the right direction, and the still more recent technique advocated by C. A. Ballance has placed the certainty of cure upon a very much more secure basis, and has, I think, done much to revolutionize the mastoid operation for chronic disease.

In both hospital and private practice I have had many opportunities of trying Ballance's operation, and the object of this short communication is to lay before this meeting certain points which appear to me to have some practical importance, and to glean from the *confrères* here assembled the results of their experiences, their difficulties, and their successes.

One of the main difficulties which I have experienced has been the constant oozing of blood from the walls of the operation cavity when that cavity has been reopened for the performance of the second or grafting operation. In order to arrest this oozing I have tried filling the cavity with warm normal saline solution, painting its walls with solutions of cocaine or of suprarenal extract, etc. These plans are at times useful, but a more efficacious plan is, I think, to open the original incision the day before the second or grafting operation, and to allow any oozing to take place into superficial dressings placed over the ear. In a few hours all oozing will have ceased, and by the next morning at the time of operation the weeping surface will be found dry and glazed. The incision may be opened without an anæsthetic, the skin being simply frozen with Bengue's chloride of ethyl.

The proper adjusting of the graft requires great care and considerable dexterity. An assistant accustomed to the performance of these operations will be found invaluable, as he knows how and where to place the needles used for fixing the graft. To float the graft into position is a method worthy of trial. The antro-tympanic cavity is filled quite full with warm normal saline solution. The graft is now floated upon this fluid. The fluid is then rapidly sucked out by means of a pipette passed through the external auditory meatus, and as it is drawn off the graft sinks with it until it lies close down upon the walls of the cavity it is desired to cover.

If it can be arranged, a dentist's salivary pump may be fitted up, and will be found very efficacious for this purpose.

I have had some difficulty with the metal stoppers as used by Mr. Ballance for pressing home the gold-leaf, on account of a certain tendency there is for the gold-leaf to cling to the metal ends and to tear. I have accordingly had glass stoppers made, which appear to me to be useful and free from the objection named.

The concha flap I think it highly desirable to graft. If not grafted, suppuration from its surface is almost certain, and may result in the neighbouring parts of the graft becoming undermined with pus and floated off.

In several cases I have found that that portion of the graft which is stretched over the remains of the posterior meatal wall has become broken, probably due to over-stretching over a comparatively sharp edge of bone. This may be obviated by very carefully smoothing the bone and rounding it well off by means of a burr, giving this wall a very sloping surface.

The tendency of the external ear after operation is to fall slightly downwards and forwards, and to assume a somewhat lower level than its fellow. To obviate this (a somewhat unsightly deformity) I am in the habit of slinging the auricle up with tapes soaked in collodion and attached upon the anterior and posterior surfaces of the auricle and to the top of the head.

My general experience of the grafting operation has been satisfactory, and it is with the view of hearing from others what their experience has been that I venture to make these few suggestions.

ON SO-CALLED SCLEROSIS OF THE MIDDLE EAR: ITS CAUSATION AND TREATMENT.

BY MAYO COLLIER, M.S., F.R.C.S.,

Senior Assistant Surgeon North-West London Hospital.

THE object of the very short communication I am about to make to you to-day is to submit to your judgment a conclusion I have arrived at that a very large percentage of these cases of so-called sclerosis, or adhesive disease of the middle ear, are a concomitant and direct result of ordinary nasal catarrh from simple mechanical obstruction to the Eustachian tube, and that the early recognition and treatment of these cases by removing obstruction of this canal and by

daily manipulations and movements of the drum-head often results in a satisfactory and permanent restoration of hearing.

Both the tympanic cavity and the other cavities leading from the nose are anatomically parts of and extensions from the nose cavity proper, and any alterations in the physical condition of the contents of the nose cavity will be communicated to and affect the patent extensions from this cavity.

The tympanic cavity is anatomically and developmentally simply an extension of the nose cavity, and normally the contents of each cavity has a free inter-communication. The tubo-tympanic cavity is a part of the upper air-passages as much as the antrum or any of the accessory cavities of the nose. It is lined with an extension of the same membrane that lines the nose, and is covered with the same sort of ciliated epithelium, but differs in this one respect—that it partakes of the character of, and virtually is, a periosteum. This difference in the constitution of the lining of the tubo-tympanic cavity greatly increases its importance both physiologically and pathologically.

Embryology shows us that the Eustachian tube and tympanum, with its extensions upwards to the attic or epi-tympanic space and backwards to the antrum or post-tympanic space, are one complex and slowly-developing extension from the oro-nasal cavity, and are completely separate, and separated developmentally and anatomically, from the internal ear or ear proper.

I desire to emphasize the fact that the tympanic cavity is part of the nose cavity, and is only accidentally related to the ear proper or internal ear. It is necessary, when studying the anatomy, physiology, and pathology of the tubo-tympanic cavity, to look upon it as part of the nose cavity, and as sympathizing with and sharing in the variations in the conditions of the contents and diseases of the nasal cavities.

The same remarks apply most assuredly to the other extensions from the nasal atrium. The antrum, the frontal spaces, as well as the ethmoidal and sphenoidal sinuses, partake of and sympathize with most of the conditions and affections of the nasal atrium. This being the case, when we hear it asserted by authorities of large experience that diseases of this or that accessory space are in a very large percentage of cases associated with, if not the direct result of, disease in the main nasal atrium, we must not be surprised. Then, again, disease in or narrowing of the nasal atrium should suggest possible or probable implication of one or more of these accessory spaces.

Chronic non-suppurative diseases of the middle ear, with deaf-

ness and tinnitus, is the affection that bears, in my belief, a close relation to the condition of the nasal atrium, and more often depends upon the condition of the nasal atrium than is commonly realized. I do not see the good of following the text-books in their descriptions of this affection.

The earlier writers were not happy in their nomenclature. Such terms as "chronic catarrh" and "dry catarrh" are either wrong, meaningless, or contradictory.

Catarrh is not a disease, but a symptom of disease, and means, literally, a discharge. In these cases there is no discharge either internally or externally. The substitution of a meaningless or incorrect term for an explanation is misleading and mischievous. The idea that chronic non-suppurative disease of the middle ear is always due to an extension of a catarrhal or inflammatory process from the nose or naso-pharynx is entirely unwarrantable. The influence exerted by the inflammatory condition of the nose or naso-pharynx is usually purely mechanical.

Again, what is the good of saying that non-suppurative disease of the middle ear may be either hypertrophic or hyperplastic? These are stages of one and the same condition, and it in no way helps us to understand why the tympanic lining with its contents is prone to become thickened, the motions of the drum-head and ossicles impeded, and the hearing gradually and seriously impaired. The terms "hypertrophic" and "hyperplastic" would be very much better discontinued. These terms in their essential meaning stand in relation as cause and effect. Hypertrophy leads to hyperplasia, over-nourishment leads to increased volume of tissue.

Can we offer a rational and reasonable everyday explanation of why it is that anyone may get such a condition of things in his tympanic cavity that his hearing becomes slowly but seriously impaired?

I believe that in the associated conditions of a chronic cold in the head with partial obstruction to nasal respiration you have every factor requisite to produce what writers are pleased to call hypertrophy and hyperplasia, or sclerosis of the middle ear.

Do not forget that the tympanic cavity belongs to the nose; that the tubo-tympanum is an extension of the nose cavity; that it is practically always open and always freely communicating with the nose; that the tension of the air in this cavity is normally the same as in the nose and the same as the outside air.

What is likely to take place if the means of freer communication between these spaces is altered or curtailed?

In the event of the free communication being cut off, the air

contents of the tympanic cavity would be partly absorbed. The drum-head would be driven in to accommodate the cavity to the lessened contents. The vessels on the lining membrane of the walls of the tympanum, no longer being under normal external pressure, become dilated from unbalanced intravascular pressure; this means swelling of the whole lining membrane, and probably serious effusion into this membrane or into the tympanic cavity.

Is not the hypertrophy of the writers thus easily accounted for, and is not this a better explanation than saying that heredity is at the bottom of the mischief, or that gout and rheumatism are the unseen agents that are at work? Gout and rheumatism no doubt play a *post hoc* part.

Now let us look for a moment at the drum-head whilst under these conditions. What is our common experience when deafness occurs after an acute naso-pharyngeal cold?

We find this condition of things: membrane very depressed, with pockets in front and behind the handle of malleus. We find that the short process is bursting through the membrane, and that the handle of the malleus is very oblique. The drum-head is angular instead of concave. The colour is normal below in the lower segments, but above, in the region of the handle and head of malleus, it is red and striated, with vessels passing down to the umbo. To produce the hyperplastic or later form of middle-ear disease, all that is required is for this condition or various grades of this condition to continue for a longer or shorter time. You then get the membrana tympani permanently stretched and damaged at some parts and thickened at others, and the whole lining membrane of the tympanum altered, thickened, and disarranged. Deposits of calcareous matter may occur when the patient has gout or rheumatism, or from other causes. The hearing is proportionately damaged, but often more or less according to accidental circumstances; noises of various descriptions of a continuous, intermittent, and varying character and intensity are produced by the increased pressure of the stapes on the fluid contents of the cochlea. This is a perfectly simple and unvarnished description of a condition of things that is most common amongst all classes of society. To anyone who sits in an out-patient room at a throat and ear hospital this condition is one of the commonest he will meet with.

Addressing men, as I now am, who are mostly attached to general or special hospitals, I ask you, Do you ever find patients who are hard of hearing in the sense I have indicated who are not at the same time suffering from, or who have suffered for some consider-

able time from, some chronic catarrhal and obstructive condition of the nose and naso-pharynx?

Now, in studying the etiology of this affection as given us in the various writers on the subject, several well-known and acknowledged facts support my contention that chronic non-suppurative disease of the middle ear in the majority of cases is due to the mechanical obstruction to the Eustachian tube, and is secondary to nasal catarrh and obstruction.

The ages of the subjects of this affection vary from five to sixty, but peculiarly enough the most frequent and commonest period of life for this affection to supervene is just that period when catarrh is most common.

Dr. Sam Seaton, of New York City, in his article on this subject in Burnett's "System," says that most of the cases develop between the ages of twenty and thirty, and the next most prolific decade is between ten and twenty. This, gentlemen, is not the period of life when degenerative change takes place in the tissues, and is not the most prolific time for gouty and rheumatic deposits to take place in the fibrous tissues of the body. This is the period of life when the functional activity of the body is greatest, and when the various vaso-motor changes incident to catarrh are most likely to take place.

The next point of interest is the extraordinary frequency of this affection. One-quarter to one-third of all ear diseases are of this nature, and probably a larger proportion, from the fact that only the advanced cases apply for relief.

The absolute frequency as measured by the numbers of cases in the total population is very great. The majority of people have some involvement of the middle ear, and a majority of these are chronic ear diseases (or so-called sclerosis), of the nature we have indicated above. This would, indeed, point to some common prevalent cause affecting the majority of those who inhabit the moister and damper portions of the globe, where sudden changes of temperature are marked.

Mr. Sam Seaton says: "Chronic or adhesive inflammation of the tympanum is an affection most prevalent in the damper portions of the temperate zone, and where sudden changes of temperature associated with moisture of the atmosphere are liable to occur." We must assign to chronic aural disease a greater frequency and a greater relative importance than even our statistics would indicate. The recognition of this fact is of importance, not only from a prognostic but also from a therapeutic point of view, inasmuch as our efforts at treatment are much more satis-

factory when the case is still in the early stage, and when no great damage of the aural mechanism or marked impairment of the function yet exists.

We know that an acute cold in the head may so far affect the hearing as to render the individual quite deaf.

I submit that all chronic conditions of catarrh of the nose or naso-pharynx, whether associated or not with more solid obstructive conditions of the nasal cavities, slowly but surely affect the tympanic cavity. The diminished supply of air to the tympanic cavity is quite sufficient to account for all the pathological conditions and symptoms found in this form of middle-ear disease.

Treatment.—Generally speaking, I have nothing to suggest to you that is new in treatment, except the fact that a great many cases of what I would call latent obstruction to the nose are missed because examined when the patient is up and about, and gravity has reduced the swollen condition of the interior, rendering the nose patent by day, but leaving it obstructed when the individual is in the horizontal position.

I would specially to-day urge upon you the importance of an early recognition of this affection, of a more frequent examination of the hearing of those subject to chronic catarrh of the upper respiratory tract. We are all painfully cognisant of our inability to cure or even relieve more than a small proportion of the more advanced cases, and we are equally conscious of the fact that the earlier stages of this affection are more amenable to treatment, and in such cases we are more hopeful of a marked degree of improvement.

Future progress in the treatment of this affection is not to be looked for in punctures and operations on the drum-head and in cleverly devised expedients to circumvent the inevitable. It is by the early recognition of this affection, when a nasal wash and a Politzer's bag will go a long way in restoring the patient to health and comfort.

ETHYL CHLORIDE AS A GENERAL ANÆSTHETIC IN NASAL SURGERY.

By JOHN MACKIE, L.R.C.P. ED.

IN intranasal surgery, such as operations on the turbinals and sinuses, the question of an anæsthetic is often a pressing one. Cocaine, though invaluable when only the mucous membrane and subjacent parts have to be dealt with, is not so satisfactory when the deeper structures are involved. Gas is unsatisfactory, from

the shortness of the anæsthesia, as also from the tendency to struggling under its use.

Chloroform and ether, on the other hand, while they introduce an element of dread into the minds of our patients, cannot well be used in the upright position, a matter certainly of inconvenience to the operator.

Some five months ago I had my attention drawn to chloride of ethyl as a general anæsthetic, and at once put it on trial. I have had it in use ever since, and find that it has greatly simplified and facilitated my work in nasal surgery. In operations on the turbinals and sinuses, I find that I have used it twenty-seven times, four times in adenoids, twice in septal deformity. In addition, I have given it for dentists and general surgeons fifteen times, making in all forty-eight administrations. In no case have I had the slightest anxiety or seen one dangerous symptom. In one or two cases, notably in one full-blown alcoholic, I found the administration rather expensive, from the amount of the drug required, while in a few of my earlier cases, I expect from my dread of giving an overdose, the anæsthesia was shorter than was convenient.

The mode of administration which I have found most satisfactory is to press the mask well over the face so as to exclude all air, and to give the drug briskly and continuously, taking care to send the spray right into the gauze in the ball of the inhaler. For a short operation, such as the curetting of the anterior ethmoidal cells, I have found from a half to three-quarters of a minute of this brisk administration sufficient. This will give an anæsthesia of from two to three minutes. For longer operations it may be pushed considerably beyond this. The action of the drug is so energetic that there is some difficulty in being sure as to the extent of the anæsthesia, but by quickly removing the mask and testing the conjunctival reflex I have generally been able to satisfy myself as to this. From the local action of ethyl chloride in the nasal passages anæmia is produced, and we have practically a bloodless operation. This is a decided advantage. The anæmia, however, soon passes off, and violent hæmorrhage may ensue, and if you have allowed your patient to leave you without providing for this by plugging, you may meet with unpleasant results.

From my experience of ethyl chloride, or, as its purified form is named, "kelene," I should say that, while it is certain to find a place in surgery generally, in nasal work it will prove of inestimable advantage, not only as a convenience for the surgeon, but as a safe and almost pleasant means of enabling a patient to undergo what otherwise must be a very trying ordeal.

Abstracts.

MOUTH, Etc.

Armstrong, G. E.—*Excision of One Half of the Tongue.* "Montreal Medical Journal," June, 1901.

Although the majority of text-books condemn all partial operations for cancer of tongue, Armstrong was of the adverse opinion, and had met with success in adopting a modification of Butlin's method. In the case he showed, after recovery from the operation, the remaining half lay in the centre of the floor of the mouth, did not curl up, was quite moist, and performed its functions. *Price Brown.*

Bruce, H. A.—*Excision of Upper Jaw for Sarcoma.* "Canada Lancet," July, 1901.

The patient was thirty-four years old. About the end of January she had a swelling of the alveolus of the left jaw, which was thought to be a gum-boil. On examination three months afterwards, the date of operation, a hard swelling was found just behind the second bicuspid, extending backwards the full length of the jaw. Internally it had not extended to the middle line. Externally it bulged out half an inch beyond the line of the teeth. The growth in the roof of the mouth was covered by mucous membrane. In the left nasal passage was a polypoid mass. The cheek on affected side was slightly prominent, but the skin was unaffected, and moved freely over the growth. The corresponding eye was unaffected. Microscopical examination of a section proved the growth to be a sarcoma.

Three weeks after operation the patient left the hospital, the recovery having been uninterrupted. *Price Brown.*

NOSE, Etc.

Craig, Herbert H.—*Sarcoma of the Nasal Septum.* "Montreal Medical Journal," June, 1901.

A male patient, aged twenty-one, complained of left nasal obstruction, associated with frequent and alarming attacks of epistaxis of a month's duration. He had lost in that time 18 pounds in weight. The obstruction itself commenced three months prior to hæmorrhage.

On examination, a bluish-gray soft tumour of the size of a walnut was found on the upper anterior half of the quadrilateral cartilage. It was rounded and vascular, and bled on being touched.

After applying suprarenal extract and a solution of cocaine, the growth was removed by cold snare, and the base cauterized with the galvano-cautery. The growth was superficially attached to the septum, and there was no induration. The pathological report was as follows: "On the whole, the specimen gave the impression of a myxoma, with some dilatation of the lymphatics, and showing a distinct tendency to sarcomatous degeneration." *Price Brown.*

Seifert, Professor (Würzburg). — *Hæmorrhage after Tonsillotomy.*
 "Wiener Klinische Rundschau," No. 15, 1901.

In addition to a general consideration of the causes and treatment of hæmorrhage following tonsillotomy, Dr. Seifert points out some of the dangers attendant on this operation. He quotes Lichtwitz, who found Löffler's bacillus present in 40·7 of his cases, sometimes alone, or in conjunction with staphylococci, streptococci, leptothrix, etc., in the wound surface. The author holds that tonsillotomy should not be performed in a general hospital or during epidemics of scarlet-fever or diphtheria.

A large number of cases are mentioned, showing that hæmorrhage usually comes on soon after the operation. Moure, however, reports a case of severe secondary hæmorrhage (in a child) where a week had elapsed before the bleeding commenced. The causes to which hæmorrhage is generally due are as follows: Injury of the tonsillar artery, some atheromatous changes in the vessels, hæmophilia, or even injury of the internal carotid, if the latter pursues an abnormal course. In cases where any of the above conditions are suspected, Dr. Seifert advises the use of the galvano-cautery snare, the pressing forward of the tonsil externally, and suggests that only three-quarters of the tonsil should be removed.

Complete rest, sucking ice and gentle gargling are recommended after the operation. The author does not approve of astringents, such as alum, tannin, or perchloride of iron; he advocates the use of a saturated solution of chromic acid applied on cotton-wool. Compression, either digital or by forceps, with lint soaked in ergotin, is recommended; use of the cautery, insertion of a deep suture, or twisting the bleeding part with forceps are further methods mentioned. Regarding the danger of injuring the carotid artery in operations for tonsillar abscess, it is safer to use the galvano-cautery to let out the pus (Moure).

Anthony McCall.

E A R.

Chavasse, P. — *Contribution to Acquired Cholesteatoma of the Ear.*
 "Archives Internationales de Laryngologie, d'Otologie, et de Rhinologie," May-June, 1901.

The author gives particulars of three cases. He considers that cholesteatoma of the ear presents a constitution intimately identical with that of pearl tumours of the meninges, of the iris, and of the palmar surface of the fingers. Cholesteatomata must be divided into two groups: 1. Those of embryonic origin—rare; 2. Acquired cholesteatomata secondary to a suppurative inflammation of the middle ear—common. The author's cases belong to the second category.

MacLeod Yearsley.

Torretta. — *Contribution to the Study of Psychopathies of Auricular Origin.* "Annales des Maladies de l'Oreille," etc., May, 1901.

The author remarks that it is a well-established fact that auricular affections can bring about epileptic attacks in individuals who have no nervous taint in their histories, and that such manifestations yield readily to surgical interference. He brings forward a case which came under the care of himself and Albericci, remarking that in all recorded

cases of psychopathies of auricular origin the symptoms were but slightly marked and transient, whereas in his instance they were so intense and persistent that it became necessary to place the patient in an asylum.

The case was that of a woman aged about forty years. There was no neurotic taint in her family or personal history. Five years before her death, which took place in an asylum, she began to have attacks of epilepsy, and later to exhibit symptoms of dementia. She had noises and slight deafness in the left ear, and as the case progressed the symptoms of insanity became more marked. She threw stones at passers-by, became taciturn and suicidal, whereupon she was put into an asylum. Her examination on admission is given in great detail, and the most salient points were: Exaggeration of genito-spinal reflexes, difficulties in gait and prehension, uniform diminution of skin and mucous membrane sensibility, tactile sensibility and sense of temperature similarly diminished, complete loss of hearing for voice on the left side, bone conduction preserved, tinnitus, auditory hallucinations, and vertigo. She had mania with epileptic crises, the latter regularly recurring every three or four days. The epileptic attacks were ushered in by a general inquietude, and she became hostile and taciturn. Loud noises and detonations would determine a fit. She died three years later during a very violent epileptic convulsion. During the later months of her life examination of the ear pointed to cholesteatoma.

Autopsy revealed cholesteatoma of the middle ear, which had perforated the tegmen tympani and extended into the cranial cavity. There was also pulmonary oedema and atrophy of the myocardium.

The author makes his case a plea for the more systematic examination of the ear in mental cases.

Macleod Yearsley.

NEW PREPARATION.

WE have received from Messrs. Burroughs Wellcome and Co. a specimen of "Tabloid" Morphine and Emetine, the formula of which is as follows: Morphine sulphate, $\frac{1}{10}$ gr.; emetine, $\frac{1}{10}$ gr.

This is a valuable addition to the list of "tabloid" products; it will prove of service in cases where a sedative and expectorant combination is required to alleviate certain forms of cough. Moreover, by the use of "Tabloid" form accuracy of dosage as well as purity of morphine and emetine are secured.

BOOKS RECEIVED.

J. B. Ball, M.D.—*Diseases of the Nose and Pharynx*. Fourth edition. London: Ballière, Tindall and Cox, 1901. 7s. 6d.

A. Broca.—*The Surgical Anatomy and Operative Surgery of the Middle Ear*. Translated by Macleod Yearsley, F.R.C.S. London: Rebman Limited, 1901. 3s. 6d.

P. H. Gerber, M.D.—*Atlas der Krankheiten der Nasen, der Nebenhöhlen und des Nasenrachenraumes*. Lief. 1-4. Berlin: S. Karger, 1901.

THE
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**CONCUSSION OF THE LABYRINTH CAUSED BY SHOCK OF
HIGH POTENTIAL ELECTRIC CURRENT.**

BY DR. F. ROHRER,

Docent der Ohrenheilkunde an der Universität Zürich.

CONCUSSION of the labyrinth of the ear and of the auditory nerve can be produced by traumatism, by sudden compression of the air in the external meatus, or by the impact of a loud sound or the accumulative effect, if repeated, of feeble sounds. We know very well the different signs of this grave and painful state, and also we infer the affection of the internal ear in relation to the concussion of the whole skull, brain, os petrosum and labyrinth, directly or secondarily, by compression of the endolymph in consequence of the centripetal motion from the apparatus of the conduction of the sound.

I have never met with any mention of concussion of the labyrinth caused by the influence of high potential electric current, but we can readily understand such an occurrence in view of the deadly consequences following such a kind of trauma. Now, I happened to see and to treat a man who came in contact with electric current of high potential, of a strength of about 250 volts and a strain of 40 to 45 ampères. The man was placed on an electric crane, and, slipping, he seized a conducting cable-cord. Immediately he felt a terrible shock of his whole body, and fell. He lost speech, and could cry out only with full lungs. For five minutes the poor man was fixed on the cable in this dreadful condition, and was nearly dead. At last one of his fellow-workmen came to the

central stage where the dynamo was, and stopped it. When taken down from the high electric crane by his comrades, for half an hour the man was unable to walk or to stand. He had a headache, and was dizzy, and swayed as though he were tipsy. The dizziness was associated with a sense of oppression on the head and noises in both ears. This state of giddiness lasted three or four weeks, and the loss of the static sense was accompanied with neurasthenic signs, so that a *traumatic neurosis* was present. The patient lost his appetite and acute rhino-pharyngitis occurred; the tonsils became swollen, respiration was difficult, he snored, and every morning epistaxis appeared for several minutes, and the memory diminished to a state of "aproxexia." The accident occurred December 28, 1900, and the patient was under the treatment of the doctor of the works until January 14, 1901. The hearing was a little diminished and veiled, but I found at this time audition for the whispering voice, 3 metres, and conversation voice, 6 metres, for both ears. The patient looked disturbed, weak, and nervous—"facies nervosa."

High sounds were heard very easily. Galton's whistle 15 and König's rods to Ut⁹ on both the ears. Also deep sounds were normally heard from 12 to 36 vibrations by bone-conduction from the skull, and by air-conduction near the meatus from 14 to 36 vibrations on both sides tested by Appunn's contra-bass tuning-fork. Weber's test was indifferent, no lateralization, and the duration of perception by bone-conduction was diminished.

Vibrations		By Patient.		Normal.
4,096 c5	=10 seconds	...	6 seconds.	
" 2,048 c4	=16 "	...	18 "	
" 1,024 c3	=16 "	...	18 "	
" 512 c2	=16 "	...	26 "	
" 256 c1	=12 "	...	11 "	
" 128 c	=10 "	...	12 "	
" 1,024 c3	=22 "	...	20 "	
" 440 a1	=31 "	...	41 "	
" 264 c1	=14 "	...	23 "	
" 110 A	=21 "	...	55 "	
" 64 C-1	=18 "	...	40 "	

*Gelle's Centripetal
Compression.*

		Air- conduction.		Bone- conduction.
Left ear	...	+	:	+
Right ear	...	+	:	+

Stopped Organ-pipes.

880 vibrations a2=f5 5,632 vibrations.

Left ear	...	+	:	+
Right ear	...	+	:	+

My treatment consisted in pneumatic applications with Politzer's proceeding, catheterism, Delstanche's rarefacteur, feeble galvanic constant current (cathodal current) of 5 to 7 milliampères, injections of warm salt water in the aural meatus and in the nose, and in the "galvano-caustic puncture" over retro-auricular parts of the processus mastoideus on both sides and on the neck. The latter proceeding I have practised for more than fifteen years, with remarkable results as a derivative of powerful effect, and mainly to combat giddiness from different causes. Also in this case the vertigo passed away gradually after some days, and the "facies nervosa" became a visage of normal aspect. Laxatives and warm foot-baths aided the cure, and in two weeks the man resumed his work in the electric works. The reflexes of the pupils, of the facial nerve, and of the patellar-cubital and nuchal tendons were perfectly normal. The tuning-forks gradually showed an increase in bone-conduction. On February 9 they were as follows:

c5	=15	seconds	time	of	pereption.
c4	=16	"	"	"	"
c3	=18	"	"	"	"
c2	=20	"	"	"	"
c1	=11	"	"	"	"
c	=13	"	"	"	"
c3	=25	"	"	"	"
a1	=32	"	"	"	"
c1	=19	"	"	"	"
A	=34	"	"	"	"
C-1	=24	"	"	"	"

I think that this case is interesting enough to be published, for the possibility of seeing similar patients grows with the increase of electric installations producing high potential currents, and with the frequency of the accidents due to the influence of this powerful phenomenon of nature. The alteration of the ear by this kind of "commotio labyrinthi" consists either in a tetanic concussion of the endings of the acoustic nerves, or in consecutive paralysis and torpor of the central fibres and origin of the acoustic centres in the brain. The vertiginous signs, similar to "Ménière's symptom-complexus," must be produced by a strong disturbance of the semi-circular canals and ampullæ, in grave cases with bleeding in the membranous parts. To the local troubles must be added the general disturbance of the whole nervous system, in the form of "traumatic neurosis" and dysthymia of the body and of the various functions.

LARYNGEAL TUBERCULOSIS AND PREGNANCY.*

BY DR. ARTHUR KÜTTNER (BERLIN).

THE influence which pregnancy exercises on laryngeal tuberculosis has hitherto never been understood. There are seven cases recorded in literature, communicated by four writers, which, as instances, illustrate the pathological condition which results from the concurrence of pregnancy and laryngeal tuberculosis. But hitherto there has not been deduced, from a comprehensive and critical study of the various researches, a general rule of treatment, even if this is not suitable for every case. This shortcoming has cost many sacrifices, which a clearer knowledge of the situation might, perhaps, have avoided. The aim of this report is to offer a suggestion as to how this drawback can be remedied.

The material which the author has collected comprises fifteen fully described cases, and, besides these, ten or twelve further cases, the exact details of which are not given.

Of these fifteen cases, seven have already been published; the remainder of the cases are, in part, cases which came under the personal observation of the compiler, and, in part, the result of inquiries made by the compiler amongst his colleagues, whose conjoint experience he has brought together. He feels that his thanks are especially due to B. Fränkel, Gussarow, T. Lazarus, and E. Baumgarten, for kindly allowing him to use their material.

The results of these researches were as follows:

Hereditary predisposition was not positively indicated in all cases. In three women there was primary disease of the lung, which had appeared before the commencement of pregnancy; in two other cases there was no disease of the lungs, or only a minimum. In one case the laryngeal tuberculosis had existed before conception; in two cases it appeared in the sixth month; in twelve cases in the first half of the pregnancy.

Primiparæ and multiparæ appear equally affected by the disease. Two women, one of whom had previously suffered from a slight apical affection, the other from laryngeal tuberculosis, after being cured remained for from three to four years without any return of the trouble. Both became ill again immediately after the commencement of another pregnancy, and died a short time after delivery.

None of the children were born at full time: four were born in the ninth month, eight in the eighth, and three in the seventh month. All the children came into the world alive; of the subsequent fate of four of them information is wanting. The author has ascertained that

* Author's abstract from a report presented at the meeting of German natural philosophers at Hamburg (*Archiv für Laryngologie und Rhinologie*, Bk. xii., h. 3).

three of them are still living : one, seven months old, is suffering from severe whooping-cough ; the second is almost two years old ; and the third, approximately fifteen years old and very delicate. Eight of the children have died, some of them immediately after birth, the latest at three weeks old—that is to say, of the eleven children that we are taking into consideration, 72 to 73 per cent. are dead.

The fifteen women of whom exact accounts lie before us have all, without exception, died ; some of them immediately after delivery, the latest two months after this period, although the course of labour and confinement was normal.

The insufficiently described cases exhibited almost universally the same form of disease ; one or other of the women went away alive, but precise information regarding this favourable issue was not to be obtained, and so the possibility is not excluded that this happy result was only conditional on a premature suspension of observation. Facts have been elicited by a later inquiry which prove how great is the number of those who suffer from a laryngeal tuberculosis complicating pregnancy and delivery.

Local treatment, *per vias naturales*, undertaken in the usual way, has been universally unsuccessful ; the prospect of a spontaneous cure, so long as pregnancy continues, must be excluded.

From the outlines of his experience, the author believes he may submit the following conclusions :

With women of whom the prognosis is hopeless, one should treat laryngeal tuberculosis only in the usual local manner, and, if necessary, perform tracheotomy.

With women of whom the general prognosis is favourable one should wait, so long as the laryngeal tuberculosis is quite slight (little erosion, a circumscribed ulcer). So soon as infiltration takes place, or the disease tends to become diffuse, one should inform the patient of the danger of her condition, and, after her consent is obtained, undertake tracheotomy as soon as possible, and should this not work favourably in a few days, bring about artificial abortion.

The earlier the pregnancy is interrupted, the more favourable are the chances for the mother, because the strain of labour is less the smaller the foetus is, and also the loss of blood which occurs in artificial abortion is proportionately small. From the seventh month of pregnancy the prospect for the mother becomes worse, because great exhaustion usually follows the strain of delivery.

It is advisable, with advanced laryngeal tuberculosis, to undertake tracheotomy before delivery, or, at least, to hold one's self in readiness for its performance, in order to obviate the risk of sudden suffocation during delivery.

NOTES.

THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM will hold its annual dinner at the Cafe Monico, Shaftesbury Avenue, on Monday, December 2, at 7 for 7.30. The President, Sir William Dalby, will be in the chair.

THE THIRTEENTH INTERNATIONAL MEDICAL CONGRESS.—We have been asked to state, for the information of members of the Congress, that the printing and forwarding of the general volume and of the seventeen reports of the sections have been completed. Any member who may not have received the volumes to which he is entitled is requested to apply to M. Manson et Cie., 120, Boulevard Saint Germain, Paris, before December 31, 1901, after which date no further applications can be entertained.

THE FOURTEENTH INTERNATIONAL MEDICAL CONGRESS, to be held in Madrid, April 23 to 30, 1903. We have been asked by the Secretary-General to state that Section 11, comprising Otology, Rhinology, and Laryngology, will be divided into two sections: 11a, Otology; 11b, Rhino-laryngology.

SOCIETIES' PROCEEDINGS.

SEVENTH ANNUAL MEETING OF THE AMERICAN
LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY.

(Continued from p. 516.)

Clinical Notes on Adrenalin. Dr. NORTON L. WILSON, of Elizabeth, N.J., read this paper.

He said that Dr. Takamini had first shown him the active principle of the suprarenal gland last October, and at the suggestion of the author the name "adrenalin" had been adopted. The preparation was now on the market in the form of a 1 to 1,000 solution of adrenalin chloride, to which is added 5 per cent. of chloretone for its antiseptic and anæsthetic properties. It is also furnished in the form of tablets, which are readily soluble. These are particularly useful for general use, because of the ease with which a fresh solution can be made extemporaneously. Dr. Wilson said that for the eye he had used 1 to 10,000 and 1 to 5,000 only,

and for the throat a 1 to 1,000 solution. One drop instilled into the eye produces a slight smarting sensation for about twenty seconds, during which time there is a notable hyperæmia of the conjunctiva. In forty seconds the entire conjunctiva, both ocular and palpebral, is blanched, and this anæmia lasts for about one hour. These solutions had shown no special effect on the cornea or pupil, and no anæsthetic properties had manifested themselves. So far as could be observed the sympathetic nerve was not stimulated, and the palpebral fissure remained unchanged. When used with cocaine the anæsthesia produced by the latter is much deeper than it would otherwise be, probably because of the depletion of the vessels. If applied to the interior of the nose it blanches the membrane almost immediately, and in the examination of the naso-pharynx it is of great assistance because of the shrinkage of the tissues thus produced. In profuse bleeding it is of little use because it is so rapidly washed away. In acute coryza it will relieve the swelling of the turbinates almost immediately and stop the profuse watery discharge, and for temporary relief in hay-fever it has no equal. In a case of acute laryngitis coming under his observation the voice was restored in twenty-four hours, and the pain very materially lessened by five applications of the spray. In acute pharyngitis and tonsillitis the relief is immediate, and is more lasting if combined with cocaine. Every operation within the nasal chambers could be made bloodless or nearly so by the use of adrenalin, but it must not be forgotten that in an hour or two afterwards there will be some bleeding, though no more than if adrenalin had not been used. The patient should be given a solution of 1 to 10,000 or 1 to 5,000 to be used at home for two days. In grip or other acute inflammations of the mucosa it was valuable in relieving the swollen mucosa and thus draining the cavities. In operations affecting the ear his experience had been limited to the removal of polypi and granulation tissue. Adrenalin was best used in combination with cocaine. He had never seen a case of cocaine toxæmia when used with adrenalin. The solution can be boiled and so made sterile. He did not use it in powder form because it was then much more irritating and caused sneezing. The best results were obtained by the absorption of the solution through the mucous membrane of the nose, and not from the stomach.

Dr. J. A. Strucky, of Lexington, Ky., said that he had used adrenalin extensively in nose and throat work since last November. He had found that it did produce some anæsthesia. When used with cocaine less of the latter was required, and the anæsthesia lasted longer. He had found it particularly valuable in middle-ear

operations. He did not believe there was any more hæmorrhage after its use than after operations in which it was not used, except, perhaps, where there was a great deal of spongy tissue. He rarely used a solution stronger than 1 to 3,000 or 5,000; in subacute laryngitis he employed a solution of the strength of 1 to 10,000. An especially useful combination was with resorcin. He had also found it a very valuable remedy to combat the shock following anæsthesia from chloroform or ether. In one case of this kind, occurring after chloroform, he had poured about half a drachm of a 1 to 5,000 solution on the tongue, and very quickly the heart's action had been revived.

Dr. T. PASSMORE BERENS, of New York City, said that he had been using adrenalin for about six months, and had found that it kept well in his office. He had purposely left one vial uncorked for six weeks, and had found it perfectly sweet and effective at the end of that time. It would blanch and clear up the Eustachian tube in those cases of acute middle-ear catarrh of tubal origin. It had been his practice to inject through the catheter into the tube from three to five drops of the 1 to 1,000 solution, and then with a Politzer bag to blow it into the Eustachian tube. This would keep the tube open for a sufficient length of time to give the patient a good deal of comfort by allowing drainage through the tube. He had also used it hypodermically in two cutaneous operations about the face, and with good result, and also injected it beneath the mucous membrane of the cheek in opening the antrum of Highmore. Here it had answered well in preventing hæmorrhage.

Dr. M. D. LEDERMAN, of New York City, thought the drug was especially valuable in lessening the absorption of cocaine, and hence preventing the occurrence of cocaine toxæmia. Such cases were not nearly so frequent since adrenalin had been in general use. In a case of nasal hydrorrhœa the local effect of the remedy had been shown when given by the stomach in conjunction with the local treatment. As it was an animal extract, he favoured combining it with some cardiac stimulant, to guard against the occurrence of cardiac weakness, when given internally, though it increases blood-pressure.

Dr. OTTO STEIN, of Chicago, said that he had recently used this remedy in a case of antrum disease, expecting to have a bloodless field, yet he had had about as much hæmorrhage with a 1 to 1,000 solution as if he had not used it. He had employed it in another case in which he had entered the maxillary sinus, and the hæmorrhage had been just as profuse as if it had not been used. He had commonly employed adrenalin in the strength of 1 to 3,000, though

sometimes in stronger solution, and he had kept it in contact with the tissues for ten or fifteen minutes.

Dr. TALBOT R. CHAMBERS, of Jersey City, N.J., said that he had done the Gleason operation on the nasal septum a good many times, and had not observed the loss of over 5 or 10 drops of blood from cutting the septum, if adrenalin had been used. His method was to inject a few drops of adrenalin (1 to 1,000 with 5 per cent. solution of cocaine) underneath the mucosa, and then the syringe was withdrawn and a few more drops injected. Finally, a few drops were injected under the mucosa, near the anterior nares. Just before operating, some cotton with 20 per cent. cocaine is wiped over the hollow of the septum. There was no bleeding after cutting the septum under these circumstances. In one case in which he had done a secondary mastoid operation for purulent otitis media, a cholesteatoma had been found. It would have been almost impossible to have enucleated this entire without the use of the adrenalin, yet with the latter this operation had been performed with perfect success.

Dr. H. HOLBROOK CURTIS, of New York City, said that while he thought the discovery by Dr. W. H. Bates of the suprarenal extract ranked with that by Dr. Carl Kohler of cocaine, he had come to the conclusion that there were cases in which, owing to idiosyncrasy, it acted very badly. He had had eight or ten cases in which there had been an absolute intolerance of adrenalin, and of any of the preparations of the suprarenal gland. In one of the first of these cases a gentleman sneezed for two hours and a half after having used the suprarenal extract, and then on his return cocaine had been used and had given immediate relief. The sneezing had, however, returned in the evening, and had lasted for hours. He had had hay fever patients, after using suprarenal extract for a few days, suffer from violent pain in the upper part of the nose, necessitating the discontinuance of the remedy. Last fall he had himself used the adrenalin spray for a few days, and then a terrible coryza had set in and had resulted in a genuine hay fever, which had only ceased on the discontinuance of the adrenalin. He had done over one hundred septum operations, and when used with cocaine he had yet to see any untoward symptoms. He would like to know if intense pain or sneezing, or violent coryza had been noted by others after the use of this substance.

Dr. EDWARD B. DENCH, of New York City, said that he had not used the adrenalin, but had employed suprarenal extract. In all of his cases the effect had been entirely satisfactory, as far as the control of hæmorrhage was concerned. In one case, where owing

to the age of the patient he had avoided general anæsthesia, he had done an Asch operation with the aid of cocaine and suprarenal extract, and there had been practically no loss of blood. This had been his experience in many other cases. In middle-ear work he had found suprarenal extract of great value. His method of using it was to saturate a small strip of gauze with the sterilized solution of suprarenal extract, and pack this, through the speculum, down upon the bleeding-point. If left there for about a minute and a half it would be found that the field was practically dry.

Dr. S. MACCUEEN SMITH, of Philadelphia, said that he had found the drug of special value in cases in which it was used with cocaine to prevent cocaine poisoning. He was accustomed to apply a 20 per cent. solution of cocaine, but he never sprayed it into the nostril, but simply made a local application of this solution. Up to the present time he had had no trouble with cocaine alone.

Dr. WALTER B. JOHNSON, of Paterson, said that it was important that the field be made thoroughly clean before the application of the adrenalin. He could not see that there was any difference in the action of suprarenal extract and adrenalin, though on the score of convenience adrenalin was greatly to be preferred. He had not met with any idiosyncrasies, all of the cases in which he had used it having been very satisfactory. The effect of the adrenalin on the lymph channels of the eye was very important.

Dr. MAX A. GOLDSTEIN, of St. Louis, said that occasionally a very acute irritation was produced by spraying a weak solution of the drug on the mucosa. He would like to suggest to Dr. Takamini that this might be overcome by dissolving the adrenalin in an oil instead of using an aqueous vehicle. A 1 to 1,000 solution would be found useful in cases of acute congestion of the larynx, the acute laryngitis of singers. If a solution of this strength were sprayed upon the larynx just before singing the result would be most gratifying.

Dr. L. L. MIAL, of New York City, said that he had used the suprarenal extract in the nose in two cases in which it had produced violent sneezing, lasting ten or twelve hours. The solution of adrenalin with chloretone was distinctly anæsthetic, and did not produce this sneezing. He had used this combination in removing spurs from the septum and chelazion from the eyelids. It caused slight smarting for a few seconds, but was very soothing after the application of sulphate of copper in cases of trachoma.

Dr. M. R. WARD, of Pittsburg, said that he had had some adverse results, but had not attributed them to the drug used, but rather to a defective technique. He had met with some irritating

effects from the remedy, but had never seen any hæmorrhage after its use. In some plastic operations on the septum he had had some difficulty in the way of sloughing. Whether this was due to lack of cleanliness or to the disturbance of nutrition produced by the drug he was unable to say.

Dr. R. C. MYLES, of New York City, said that he had been particularly fortunate in the use of the powdered suprarenal extract during the past few years. In the last few months he had unfortunate results with the aqueous solution with resorcin, and had three patients leave him because of this. In one case he had used in the nose a 10 per cent. aqueous solution of suprarenal extract containing 2 per cent. of resorcin. It had caused very troublesome sneezing, and then the patient had disappeared. In another case the sneezing had lasted all night and all the next day. All these unfavourable results had occurred in connection with the use of the aqueous solution of suprarenal extract, never with the powdered extract. The solution had been boiled each time.

Dr. PRICE BROWN said that he had not used the extract for about one year, because he had met so frequently with irritation. He intended to try adrenalin.

Dr. CHARLES W. RICHARDSON, of Washington, D.C., thought that all must have noticed certain constitutional effects, such as attacks of vertigo, with nausea and headache, resulting from internal administration of the drug.

Dr. JOHICHI TAKAMINI, of New York City, said that his work had consisted simply in the isolation of the active principle of the suprarenal gland. He had been the first one to isolate this active principle in the chemically pure crystalline form, and he looked upon this fact as only the beginning of great progress in organotherapy. It was probable that the active principle of many other glands would be similarly isolated in the near future. The very fact of adrenalin being crystalline was Nature's certificate that it was a definite chemical substance. It was not his province to determine the best dose or strength in which it should be used. Chemically, the adrenalin was a very mild alkali, the alkalinity of which had been just neutralized. He could not, therefore, understand why it should produce such irritation as had been described by some of the speakers. Dr. E. Fletcher Ingalls, of Chicago, was one of those who had complained to him of the irritation produced by adrenalin; but from a published article by Dr. Ingalls he had learned that this physician had been in the habit of dipping his instruments into a formalin solution. This, of course, would readily explain the irritation observed. It was well known that

distilled water produces a good deal of irritation in the eye and also in the nose, and hence the solution should be made slightly alkaline. The ordinary suprarenal extract contained considerable mineral matter, and its solution was therefore similar to normal salt solution. He had tried the plan of dissolving adrenalin in oil, but had found it practically insoluble. He had, however, succeeded in making an oleate of adrenalin, but the moment this is sprayed it is liable to oxidize and to become quickly inert. It might be possible, by the use of a device which would expose only 5 or 10 drops to the air, to make use of this oleate and so overcome the objection just mentioned.

Dr. WILSON, in closing the discussion, said that he had observed none of the cases of irritation. He had seen irritation from the watery extract of the suprarenal extract, and yet in the same patient adrenalin had not produced this irritation. He had never succeeded in obtaining as active a preparation of the suprarenal extract after sterilizing it by heat. Such deterioration he had not observed with adrenalin, which could be sterilized repeatedly without lessening its efficiency. He had never observed sloughs after the use of adrenalin, though he had used this drug for two days after operation. He was inclined to think that some physicians used it too strong; 1 to 5 or 10,000 was strong enough for ordinary cases.

Empyema of the Right Maxillary, Ethmoidal, and Sphenoidal Sinuses, with subsequent Blindness of the Left Eye; Operation and Recovery of Sight. Dr. T. H. HALSTED, of Syracuse, New York, reported this case, and called attention to the frequent anatomical variations in the structure of the sinuses. In the past year many cases had been reported showing the relation of sinus disease as a cause and eye lesion as a result.

The case reported was that of a woman of forty-five, who on awakening had found herself totally blind in the left eye. Examination showed swelling of the sheath of the left optic nerve, enlarged and tortuous veins, and quantitative perception of light only. For about two years she had had some nasal catarrh, and some months previously had had an acute exacerbation, characterized by a constant and free discharge of odorous pus. This pus had been discharged only from the right side. On examination he had found the left side clear. There was pus coming from under the right middle turbinate. Under transillumination the right maxillary sinus was completely dark, and both frontal sinuses were very

translucent. The left pupil was widely dilated, and there was exophthalmos. He had made the diagnosis of empyema of the right antrum, right ethmoidal, and sphenoidal sinuses, with rupture and probable pressure on the optic nerve. He had advised immediate opening to relieve the pressure. Under cocain, anæsthesia, and with the aid of suprarenal extract, the operation had been undertaken, but had been carried on with difficulty because of the free hæmorrhage. A week after the operation she could count fingers, nasal respiration was much improved, and pus was coming from the right side of the nose. Two or three weeks later it had been necessary to enter the antrum and evacuate a considerable quantity of stinking pus. The antrum tube had been removed now about six weeks; she was entirely free from headache and insomnia, and her general condition had greatly improved. She could read ordinary type with the left eye. From a study of this case it seemed probable that the sudden onset of blindness was the result of the accumulation of pus in the sphenoidal cavity and pressure on the optic nerve running through the optic foramen.

A Case of Frontal and Ethmoidal Disease, with Abscess of the Orbit. Dr. THOMAS R. POOLEY, of New York City, reported this case.

The patient was a youth of nineteen, who had come to him suffering intense pain around the right eye and that side of the head. The temperature was 104° F., and the pulse 120. Six years previously this eye had suddenly swollen, and had been relieved somewhat by an incision of the lid. Two years later the sinus had been opened to relieve the swelling. Dr. Pooley had operated under ether anæsthesia, exposing the orbit. The sinus was found enlarged, and was curetted. On entering the depth of the orbit 1 or 2 drachms of pus escaped. An opening was then made into the anterior ethmoidal cells, and through the infundibulum into the nose. A soft rubber catheter was then drawn through, and the ends of the tube tied together. The wound was packed around the tube. This operation effected immediate improvement. Almost daily dressings were made, and at the end of two months healing was complete. Numerous nasal polypi were discovered after this operation, but they disappeared in a short time. The paper concluded with a reference to the common involvement of the accessory sinuses after scarlet fever, and the need for prompt and thorough treatment when there is external swelling. The patient was exhibited.

Empyema of the Frontal Sinus: some Observations on its Treatment. Dr. GEORGE L. RICHARDS, of Fall River, Mass., read this paper.

He called attention to the fact that the frontal sinus varied in position, size and thickness. The danger to life of empyema of this sinus he considered to be very small. If exploratory puncture of the antrum were negative, then the source of the pus might be the anterior ethmoidal cells. Transillumination was of some value. As a rule, the entire anterior portion of the middle turbinate would have to be removed as a preliminary measure to treatment. These cases tend to get well if the drainage were thorough enough. The direction of the canal having been determined by means of a probe, a silver or hard rubber tube curved like the probe should be passed in and the sinus washed out. Where the purulent discharge had lasted a long time and polypi had formed, it was more difficult to decide upon the best method of treatment. The anterior ethmoidal cells should be thoroughly destroyed with the curette. He had the best results from irrigation when he had used a solution of corrosive sublimate 1 to 10,000. The question of operation must depend upon the presence of evidence of septic absorption, of symptoms of cerebral irritation, or the recurrence of attacks of pain. He preferred to make the opening between the supraorbital notch and the root of the nose, and underneath the ridge, and preferred the mallet, chisel and curette to the surgical drill. The opening should be made as large as possible, and all of the ramifications of the sinus vigorously curetted. The best form of drainage was by the fenestrated rubber tube. The tube should be retained at least two or three weeks. It was best to keep the external wound open for a time.

Dr. NEIL J. HEPBURN, of New York City, said that in Dr. Halsted's case the blindness might have resulted from a thrombosis of the central retinal vein. Unless the pressure had occurred very suddenly, it could hardly account for the very sudden onset of the optic neuritis of that grade. An ordinary optic neuritis coming on from pressure would disclose a certain progressive loss of vision. He had witnessed one case of operation on the sphenoidal abscess by an eminent surgeon, in which the cavernous sinus had been accidentally opened. The hæmorrhage had been most startling, but the surgeon had retained his composure, and had succeeded in controlling the bleeding by packing in a way which had led the eye-witnesses to have less dread in the future of the occurrence of such an accident.

Dr. TALBOT R. CHAMBERS said that many cases of frontal sinusitis, if taken in hand early, might be aborted before the occurrence of the purulent stage. The accumulation of mucus in a frontal sinus was the first step of a sinusitis, and could be readily evacuated. When entering the sinus and removing bone, it was better to use an instrument which could punch out an opening. A case was mentioned in which at one sitting he had taken away the inferior turbinate and the covering of the sphenoidal sinus, and opened the whole space into one cavity. By this procedure the mucus secretion could be removed in certain cases at an early stage.

Dr. SARGENT F. SNOW said that two years ago he had had a case quite similar to the one reported by Dr. Halsted. The difference was that the blindness had been a week in coming on. There had been so much pressure that the vitality of the bone had been lowered, and the operation had been done for the most part with a Buck's ear curette slightly bent near the ring, a very safe instrument for such work.

Dr. REDMOND W. PAYNE, of San Francisco, said that Dr. Richards's paper and exhibition of skulls called to mind some of his own work. He had endeavoured to determine the number of anomalies met with in this region. In the formation of the sinus itself was to be found the reason for many failures. In some of the sinuses that he had examined the depth of the sinus had run back over the orbit almost to the optic foramen, both plates being exceedingly thin. In some instances in which the sinus had run back deeply it had been divided into several compartments by bony septa. Such cases showed at once the impossibility of eradicating the disease by any opening below without an attempt to reach it with the curette. The external wall should be removed either entire or in section, thus exposing the seat of the disease and admitting of thorough exploration. If the mucous membrane lining the sinus had undergone fungus or polypoid degeneration, and two-thirds of it only had been removed, the patient would not be permanently cured. Many of these cases of chronic suppuration would go on for years. Not many cases of meningitis had been reported in this connection, but as there were many cases of meningitis following chronic suppuration of the ear, he saw no reason why the same should not occur in cases of sinus disease.

Dr. CHARLES W. RICHARDSON, of Washington, D.C., spoke concerning operative intervention in cases of purulent discharge from these sinuses. When pus issues from a closed cavity the proper course was to insist upon the opening of the sinus and removing the diseased condition found there. It seemed to him that con-

servatism was not at all in place where there was a purulent discharge from these sinuses. In a sinus so accessible as the frontal there should be no question as to the wisdom of operative intervention. A very slight purulent discharge might be connected with very extensive disease. In other regions of the body in which operative intervention was much more dangerous the general surgeon did not hesitate, and he could not see why the rhinologist should be so backward about operating. No one hesitates about opening an abscess of the mastoid. These operations should be done promptly and as thoroughly as possible.

Dr. R. C. MYLES said that free drainage was far better than anything else. He had always been opposed to over-curetting of these sinuses, for he was of the opinion that by such treatment the period of convalescence was greatly prolonged or indefinitely postponed. By such curetting the mucosa and periosteum were removed, and the re-formation of these tissues not only takes a long time, but is apt not to re-form in many crevices, and this leads to a permanent discharge. Extensive destruction of the ethmoid cells, or of bony tissue intended to protect the frontal sinus, usually made the patient's condition worse than before the operation. According to his experience, the best way of obtaining free drainage was by removing the anterior end of the middle turbinate and also the median wall of the anterior ethmoidal cells. This alone, with proper irrigation, would effect a permanent cure in the majority of these cases. It was his practice to remove the anterior wall of the sphenoidal cells rather thoroughly, never curetting the upper wall. In a few months the opening would close by contraction of the mucous membrane, but it could be quickly and almost painlessly opened with a bistoury. In the unfavourable frontal cases, the great obstacle was the nasal process of the superior maxillary bone. Entrance above the orbit was the straightest way for removing this process. This could be done well only by making the opening above the supraorbital ridge. He formerly did the infraorbital operation, and had experienced great difficulty in getting rid of this hard, bony process. In his opinion, all cases of acute empyema of these cells should be carefully studied before attempting operations. In chronic cases conservatism should be given a trial. Frequently irrigation would be sufficient, or the mere extraction of a tooth, and it should be tried first, care being taken to explain to the patient that it was in the nature of a preliminary operation.

Observations upon the Treatment of Stricture of the Lachrymal Duct by Electrolysis. Dr. L. L. MIAL, of New York City, read this paper.

He said that he had found silver the best metal to use, and preferred to place the positive electrode on the wrist. As a stricture was never the whole length of the canal, it was a matter of much importance to apply the current only to the narrowed portion. He had used the volt selector, the ampèremeter, and a rheostat, with the Edison 110-volt current. Any one could satisfy himself of the relaxing effect of the current by introducing an instrument which is tightly grasped, and then noting how loosely it was held after the passage of the current. Each séance should last from thirty seconds to three minutes. Several illustrative cases were reported. The author claimed that electrolysis is harmless if used properly, that it is antiseptic in its action, that it is much less painful than the usual mode of passing a probe, and that it dissolves and relaxes strictures much better than any other method, thus diminishing the danger of tearing the mucous membrane and making false passages.

Dr. T. R. CHAMBERS asked if Dr. Mial had used the combination of cocaine and adrenalin in the lachrymal canal. He had found that if it were passed in by a small bougie it would be possible to pass a No. 2 or No. 3 probe. The electrolytic treatment of these cases was new to him, and called for serious consideration, even after making all due allowance for enthusiasm.

Dr. N. L. WILSON thought the advantage of electrolysis was simply to relieve the stricture. When he had begun to use electrolysis in the Eustachian tube for this purpose it had occurred to him that the method was applicable to the lachrymal duct, and he had used it in that duct with equally good results as regards relieving the stricture.

Dr. C. DUNBAR ROW, of Atlanta, Ga., said that he had used electrolysis in the Eustachian tube, but not in the lachrymal canal. He would like to ask whether these electrical bougies are passed through the upper or the lower canaliculus, and whether the latter is always slit before the passage of the bougie.

Dr. E. E. HOLT, of Portland, Me., said that the treatment of these cases was exceedingly difficult at the best, and any improvement should be welcome. In 1881 he had spent some time with Dr. Bowman, and had studied the subject very carefully with those attending the Seventh International Medical Congress in London at that time. It was quite amusing to note the different methods

of treatment by those living in different parts of the world. He noted that Dr. Bowman had had some of his cases under treatment a very long time, one of them for fourteen years. He had remarked at the time that quicker methods were demanded in America. Dr. Holt said that his routine method of treating lachrymal disease of long standing was to dilate the lachrymal canal under ether anæsthesia up to No. 13 Bowman, and put in a lead style. He believed, however, that in many cases a good deal could be accomplished by electrolysis.

Dr. MIAL, in closing, said that he had used adrenalin and cocaine in the lachrymal duct, and while it allowed one to pass the probe with less discomfort to the patient, it had no effect on the stricture. He had used the electrical probe in both the upper and lower canaliculi, but for stricture of the lachrymal duct he always used the lower canaliculus, and the great advantage of the electrolytic method was that one could easily dilate to No. 5 or even No. 8. When an insulated electrical bougie of such size could be introduced the result was exceedingly good, and was obtained without risk. One should not lose sight of the fact that the strictures are relieved. Why the epiphora was not relieved in certain cases he was not prepared to say. He was of the opinion that a stronger current could be used in the Eustachian tube than in the lachrymal duct. He could not give the reason for this, but probably it was because there was more moisture in the lachrymal passages.

A Few Remarks on a generally unrecognised Ear Disease. Dr. H. A. ALBERTON, of Brooklyn, N.Y., read this paper.

He said that the mucous form of otitis occurs more frequently in adults than in children, and often after an attack of grip. There was often little or no pain, but a stuffy feeling in the ear and a diminution of hearing. Crackling sounds on blowing the nose or swallowing was not so common as in the serous variety. Tinnitus was apt to be severe, and there might be vertiginous attacks. Inspection showed but little congestion, the membrane in its normal position, lacking lustre and having a dull gray colour. There was a dull-looking area of hyperæmia along the handle of the malleus and at the periphery of the drum membrane. In most cases the tube was obstructed. There was a noticeable disproportion between the power to hear a whisper and the spoken voice. The upper tone limit was not much affected. The pulse and temperature were practically normal. The condition might last from a few weeks to a number of years. Inflation of the tympanum improved the hearing. On incision of the tympanic membrane there might

be no discharge, but on inflation a stringy tenacious discharge made its appearance in the canal, and the hearing was immediately greatly improved. Douching through the external canal had seemed, in his experience, to do only harm. The treatment *par excellence* was incision and evacuation of the tympanum with measures directed towards improving the condition of the nasopharynx. The drum membrane was often healed at the second dressing.

Tuberculous Otitis Media, Mastoiditis, and Meningitis in an otherwise apparently healthy Adult. Dr. J. F. McCaw, of Watertown, N.Y., made a brief report of this case.

The patient, a male of forty-five years, he had first seen on December 11, 1900. About one year previously, without assignable cause, a thin discharge had begun from the left ear, and at intervals of two or three months there had been an attack of slight pain in the ear, and sensitiveness in this region, with an increase in this discharge. There had been no special change in his general physical condition up to seven weeks before coming under observation, when he had had an attack, supposed to be the grip. About this time he had had one of the attacks of pain around the left ear, and for the last week had become lethargic and weak. On examination, he could not be aroused from his stupor, but responded to stimuli. There was tenderness over the ear and a foul discharge from the ear. The tympanic cavity was filled with granulation tissue and pus. No glandular enlargements were observed. The diagnosis of cerebral abscess was considered probable. The mastoid operation had been done the same afternoon, and this had revealed extensive bone destruction. The wall of the sigmoid sinus and the meninges of the brain were exposed during the operation, and were found to be studded with numerous miliary tubercle. The patient died twelve hours later. At the post-mortem examination the lungs, liver, spleen and kidneys were found free from tubercle, and the mesenteric glands not enlarged. Scrapings from the mastoid showed the presence of tubercle bacilli and streptococci. An examination of the brain was not permitted. The experience of most observers seemed to indicate that primary tuberculosis of the ear occurs infrequently.

Dr. GOLDSTEIN, of St. Louis, reported three cases observed by him during the past ten years of mastoiditis which might possibly be considered primary. The first case had been reported about nine years ago. The patient was a little coloured boy in whom the sequestrum contained the cochlea and part of the semicircular

canals. Numerous tubercle bacilli were found in the discharge from the ear, and physical examination failed to reveal a tuberculous process in other parts of the body. Eight months later this child died of pulmonary tuberculosis, so that it could not be said that the case was really one of primary tuberculosis of the ear. The second case was that of a girl of nine years whom he had operated upon about seven years ago. The granulation tissue had been found already invaded by tubercle bacilli. The child made an uneventful recovery, and was still living. The third case had been operated upon twice for mastoiditis, the second operation having been about six months ago. The wound was now slowly healing, and he was inclined to think there was still a tuberculous focus or nidus in the ear. Examination of the sputum and of the lungs had been negative as regards any other tuberculous process. These cases were possibly examples of primary tuberculosis of the ear.

Dr. J. F. McKERNON, of New York City, said that three years and a half ago he had had a case under observation for a short time before operation. After operation, the wound had failed to heal, and after about four months examination of the granulation tissue had shown the presence of numerous tubercle bacilli. The lungs had been carefully examined by two excellent diagnosticians, but no tuberculosis discovered. He had had the case under observation ever since the operation. The wound of the ear would heal at intervals, and then break down again. No evidence of general tuberculosis had yet been discovered, and he was inclined to look upon this as a case of primary tuberculosis of the middle ear. Packing the ear with gauze soaked in the valerianate of guaiacol seemed to be the only thing that provoked even temporary healing.

The Schwartz-Stacke Operation for Chronic Suppurative Otitis Media; Re-formation of the Tympanic Membrane; Secondary Myringectomy; Improved Hearing. Dr. M. D. LEDERMAN, of New York City, read a paper with this title.

The case reported was one of very extensive destruction of bone, the result of an acute process, although the middle-ear process had become almost quiescent. The presence of streptococci or of pneumococci certainly would indicate an operation. Another case cited was that of Mrs. X——, who for eight years had suffered from headaches on the right side, and for a long time there had been a discharge from the ear on that side. A probe revealed caries of the ossicles and attic, and there was some tenderness on deep pressure over the antrum. She had two distinct chills a week before

examination. On October 31 the Schwartze operation was done. The antrum was deeply situated, the lateral sinus was quite superficial, and the dura dipped very low, so making the operation quite difficult. No pus was found in the antrum, but some granulation tissue was removed with a spoon; the necrosed malleus and incus was removed. An incision was made through the membranous canal and a drainage-tube inserted. On the sixth day union had occurred. The wound healed over in six weeks under enzymol dressings. Last January tenderness over the mastoid returned, and examination showed a secondary membrane. The latter was removed, and a small portion of granulation tissue was curetted from the upper part of the attic. The patient suffered from a severe attack of vertigo, which lasted for two days, and was associated at first with very marked vomiting. A good result followed.

A Case of Sinus Disease. Dr. EDWARD B. DENCH, of New York City, presented a patient upon whom he had operated about six weeks ago for acute mastoiditis.

The internal table had been found carious, and a clot had been discovered in the sinus. There had been an unusual elevation of temperature after the operation, and on the fourth day he had ligated the internal jugular vein, and had found a softened clot. Since then recovery had been uninterrupted.

Diseases of the Fauical Tonsil and Peritonsillar Tissue: Anatomy and Physiology. Dr. NORVAL H. PIERCE, of Chicago, took up this topic. He said that lymphoid tissue was plentifully distributed throughout the body. It was abundant in the larynx, especially about the ventricles. It is absent from the trachea. This tissue was widely distributed through the animal kingdom, being present in the mammalia with the exception of the rodents. At birth the tonsil consisted of a sac, but it could rarely be recognised as the tonsil at this time. The supports and, consequently, the shape of the tonsil varied in individual cases. The supratonsillar space was triangular, its apex projecting up between the palatal muscles. In this space so-called tonsillar abscesses occur. This space should always be explored in examining the pharynx. The speaker said that little was known of the function of the tonsil, though recent experiments seem to indicate that it has the same office as the ductless glands in the body.

Acute Suppuration. Dr. MAX A. GOLDSTEIN, of St. Louis, said that it was generally admitted that opportunities for infection and suppuration in the tonsil were unusually favourable, yet acute suppuration, limited to the tonsil and going on to abscess formation,

was an unusually rare condition. The suppurative process was usually consummated in the peritonsillar tissue—indeed, there might be intense abscess formations in this tissue while the tonsil remained small and healthy. He was inclined to the opinion that the glandular and lymphatic element of the tonsil played an important rôle in the transmission of pyogenic infection to the peritonsillar tissue. Early surgical interference seemed to him rational and often imperative, to prevent sequelæ and the possibility of a burrowing abscess. Early incision before the presence of pus could be recognised was not necessarily an abortive measure, yet it was an exceedingly valuable procedure. He followed incision with the bistoury by the introduction of blunt forceps, and then spread open their blades widely. This secured free drainage where pus formation and abscess occurred, and at the same time left only a small pharyngeal opening. He believed that early incision, even before pus could be recognised, was a valuable prophylactic. Edema often followed, and might be relieved by incision or by the local use of adrenalin. The patient's comfort might be materially increased by syringing into the pharynx a mixture containing 2 or 3 grains each of menthol and camphor, and 3 or 4 drops of oil of sandal-wood to the ounce of benzoinol.

Peritonsillar Suppuration. Dr. HENRY J. HARTZ, of Detroit, read this paper.

He said that the infection often spreads from chronic latent tonsillar abscess through the lymphatics to the mediastinum, resulting in pleurisy and pyæmia. Latent tonsillar abscess could only be demonstrated by section of the tonsil and by microscopical study of the micro-organisms. In this way it might be traced through the lymphatics to the mediastinum. Caries of the teeth, nasal operations, and abrasions of the pharyngeal membrane might give rise to infection. Peritonsillar disease occurred most commonly in youths and adults, or at a time when retrograde changes in the lymphoid tissue were taking place. The peritonsillar abscesses which he had seen had all shown a marked development of the so-called "capsule" of the tonsil. Obstruction to the natural channels of drainage was one of the chief exciting causes of peritonsillar inflammation, and articular rheumatism following tonsillitis was probably the result of the deposition in the joints of germs entering the system from the tonsil. About one-fourth of his cases had suffered from pain indefinitely called rheumatism. When obstruction to drainage was removed, no recurrences take place, even in those who have had articular rheumatism. The obstruction to

the drainage might be so firm as to force the infection into the pharyngeal tissue. In the recurrent cases it was sometimes advised to seek for the fistula by pressing with a probe upon the anterior pillar, when a drop of pus would make its appearance at the site of the fistula. The recurring abscesses were, for the most part, situated within the pharyngo-maxillary space. Sometimes curettement, followed by the application of trichloroacetic acid, is sufficient. Excision of the tonsil was frequently the best treatment. Local scarification and the local application of heat would assist in dissipating the congestion in the early stages of peritonsillar inflammation. Gargling was often painful. Considerable comfort was afforded by a spray of a 4 per cent. solution of cocaine.

Acute Lacunar Inflammation. Dr. M. R. WARD, of Pittsburg, discussed this subject.

He said that the essential lesion was a catarrhal inflammation of the lacunæ or crypts. Its infectious nature was no longer in doubt, but its specific organism had not yet been isolated. Intranasal and pharyngeal operations were frequently associated with acute lacunar inflammation, no matter how carefully these operations had been done. The open wound might serve as an entrance for bacteria, or changes in the secretions of the parts, resulting from the irritation of packing or plugs, might be responsible for the trouble, or, lastly, this form of inflammation might be the result of the action of cocaine and similar substances upon the system. The theory of the microbic origin of rheumatism was to-day pretty generally conceded to be correct. Acute lacunar tonsillitis occurred most frequently in early life and in adolescence. Any portion of the lymphoid ring might be affected. Abundant clinical evidence could be adduced to show that acute lacunar inflammation was moderately contagious, and the severity of the resulting inflammation depends upon the nature of the micro-organism introduced. The treatment of this form of inflammation should be both local and constitutional. He could not personally claim to be able to abort this process. The local application of guaiacol was claimed by some to have this power, but he had never been able to successfully abort an acute lacunar inflammation by this or any other remedy. All that could be done by treatment was to modify its severity, as it was self-limited, lasting only a few days. Small pieces of cracked ice or ice-water were decidedly useful in the early stages. The patient should be freely purged with calomel or with effervescent phosphate of sodium. The value of the time-honoured tincture of the chloride of iron could not be over-

estimated, and it should be given throughout the acute stage. Codein, salol, and phenacetin would relieve the headache and other pains. The tonsils should be removed in the interval of the attacks.

Mycosis. Dr. ARTHUR G. ROOT, of Albany, N.Y., discussed this topic briefly.

He said that pharyngomycosis was a rather uncommon affection. *Leptothrix* and the *bacillus follicularis* were the organisms usually found in the deposits. The process was a slow one, and presented only objective signs. Mycosis was often mistaken for a follicular tonsillitis. Small pearly-white tufts would be found dotted over the surface, and, on attempting to remove them, it would be noted that they were embedded deeply in the tissues. If the disease were of long standing, these tufts would occasionally be found run together. He was not one of those who look upon mycosis as a pretubercular condition. Aside from building up the general health, the essential thing in the treatment was to destroy the fungous growth by the application of various astringents and antiseptics. It was still better to remove the tissue by the curette, forceps, and tonsillotome.

Tuberculosis. Dr. CORNELIUS G. COAKLEY, of New York City, was the author of this paper.

He said that the frequency of tuberculosis had been underestimated. One observer had found in a series of cases 48 per cent. of tonsils tubercular. According to his own clinical experience, this percentage seemed much too high. The pillars of the fauces and the posterior pharyngeal wall were often involved. The tubercular ulcers were usually irregular in outline, and showed a tendency to coalesce. The following remedies had given him the greatest satisfaction in these cases. The parts should be cleansed with a spray of sodium chloride and bicarbonate of sodium, then sprayed with a 10 per cent. solution of cocaine, and finally treated with a 25 per cent. solution of lactic acid. This solution should be repeated at intervals of three days, the strength of the lactic acid solution being gradually increased. He had also found formalin a useful disinfectant in such cases. It had been demonstrated that tubercle bacilli may pass through unbroken epithelium of the tonsil. Some cases of primary tuberculosis of the tonsil present nothing in their appearance different from that of an ordinary hypertrophy of the tonsil.

Glandular Complications. Dr. TALBOT R. CHAMBERS, of Jersey City, N.J., read this paper.

During the past year gland involvement, he said, had not been frequently noticed. Guaiac, in frequently repeated doses, had caused a diminution in the size of the glands; enucleation should be preferred to incision and curettage. The rubbing of acutely or chronically inflamed glands was very reprehensible.

Dr. JONATHAN WRIGHT, of Brooklyn, N.Y., opened the general discussion. He said that the structure of the normal faucial tonsil was practically the same as that of the lymph glands. Long ago Huxley had made the statement that the tonsil was a diverticulum of the pharynx, around which the lymph glands had been thrown. The theory of phagocytosis had been greatly modified of late, until now it was believed that it was the juice of the lymph cells which served to protect the body from invasion. The protective influence of lymphoid tissue had been thrown around the diverticula found at various mucous places in the removal. This was probably because in these clefts bacteria would find easy lodgment. In the nose there was not the same reason for the development of such lymphoid structures. But there was a special necessity for such protective influence in the pharynx, which receives the drainage from the nasal cavities, the ingestion of food by the mouth, and the upheaval of mucous particles from the bronchi and trachea. Before dust particles of bacteria could reach the terminal branches of the bronchial tree, they must be deposited upon the mucosa, and be cast upward by the ciliated cells to the pharynx, and it was just here that the lymphoid tissue of Waldeyer's ring was found.

Dr. FRED C. COBB, of Boston, Mass., said that it seemed to him that most cases of acute peritonsillar abscess could be traced to a prior acute tonsillitis, though in many instances of abscess, on first coming under observation, there was no sign of the precedent tonsillitis. The tendency now was to make the incision between the pillars rather than in the classical position in the anterior pillar. If the cut were at the right angle to the direction of the pus, the latter might or might not be reached. By cutting in the direction of the pillar, one cuts in the direction in which the pus is going, and it is more easily reached. Looking over twenty cases, he found three that had been opened to the supratonsillar fossa had closed again. In his hands a much larger percentage would close if the incision were made in the old so-called point of election. He had seen a peritonsillar abscess develop in the lower part of the tonsil after the upper part had been removed. In lancing peritonsillar

abscesses two kinds of cases were to be considered, viz., (1) those in which pus is for the most part between the anterior pillar and the tonsil, and (2) those in which the pus is in the anterior pillar. If the pus were in the anterior pillar, the pillar would be slanted forward and the posterior pillar backward, and *vice versa*; hence one could decide whether to lance through the anterior or posterior pillar, or through the supratonsillar fossa. The speaker said that he had taken measurements of the depth of the average peritonsillar abscess cavity from the edge of the anterior pillar, and had found it to be one inch and an eighth. If, therefore, the knife penetrated three-fourths of an inch, the operator might feel safe.

Dr. LEWIS A. COFFIN, of New York City, endorsed what Dr. Hartz had said regarding the etiology of peritonsillar suppuration. If the drainage of the nose were defective, very slight causes would be sufficient to provoke inflammation. He was still sufficiently old-fashioned to make use of the old iron mixture, believing it to be very much better, in a very large number of cases, than the use of the salicylates or of guaiacol. He was inclined to think the good effect of guaiacol was, after all, chiefly due to its astringency. Astringent applications cause the ejection of the occluding plugs, and this leads to a prompt cure.

Dr. T. PASSMORE BERENS, of New York City, presented, in connection with this discussion, a specimen of papilloma of the tonsil itself.

Dr. M. D. LEDERMAN reported a case which had presented symptoms like those of the grip, and the appearance of the throat had been that of a pseudo-membranous inflammation. Under the microscope there were colonies of staphylococci. The pain had been very severe. Within two days after the subsidence of the membranous affection of the follicles all the joints of the body had become involved, but relief had been quickly afforded by anti-rheumatic treatment. He had seen a case in which the tonsil had been incised seven times for a peritonsillitis. The knife had to be carried directly backward for one inch and a half before pus could be reached.

Dr. V. FREUDENTHAL, of New York City, said that he agreed with Dr. Ward that it was impossible to prevent acute lacunar inflammation by the use of any drug, but it could be done by attention to the climatic factors which play an important rôle in the etiology of this affection. To prevent acute lacunar tonsillitis he did not advise bundling up children in clothes, but hardening them to changes of temperature. Mucus dropping down into the nasopharynx and drying, acts as a foreign body, and causes an

irritation which predisposes to lacunar inflammation. The obvious indication was to treat the nasopharynx.

Dr. M. A. GOLDSTEIN, of St. Louis, suggested the possibility of there being but two avenues of infection. There were two forms of peritonsillar infection having separate clinical characteristics. The peritonsillar form was confined practically to the anterior pillar; the other was a supratonsillar abscess. He raised the question if it were not possible for a form of peritonsillar abscess which is so closely associated with the tonsil, and so adjacent to the anterior pillar, to be a direct tonsillar infection, and the other an infection carried by the lymph channels. He believed it was possible to differentiate these two forms. He agreed with Dr. Freudenthal as to the preventive measures indicated for acute tonsillitis. He had attempted in the last few years to thoroughly curette the lacunæ free from all detritus, and then apply to the lacunæ pure carbolic acid, pure guaiacol, or trichloroacetic acid. In most of the cases in which this has been done the duration of the tonsillar affection had been materially reduced.

Dr. T. H. HALSTED, of Syracuse, N.Y., said that he had just seen an interesting case of tonsillar inflammation. A University student had been sick with a fever like that of typhoid. About the ninth day spots had appeared on the body, and a spot or two of ulceration on the tonsil. The throat symptoms had then rapidly become the more prominent. Another physician insisted that the case was syphilitic. When the speaker had seen the case two or three days later, the uvula was enormously œdematous and the left tonsil ulcerated. The temperature ranged between 100° F. in the morning to 102° F. at night. The case seemed to him to be one of typhoid fever complicated with a tonsillar inflammation, but he had never seen this complication before.

Multiple Cerebellar Abscesses; Sigmoid Sinus Thrombosis. Dr. J. E. SHEPPARD, of Brooklyn, N.Y., presented a cerebellum and dura showing a multiple cerebellar abscess and a sinus thrombosis.

The specimen had been taken from a man, thirty-seven years of age, who had been admitted to the Brooklyn Hospital on April 19, 1901. About four months previously he had been hit in the frontal region with a pitch-fork. One month later he had begun to have pain in the right ear, and shortly afterwards a discharge of pus from this ear. For about one month he had had headache, especially on the right side, and, according to the patient, he had had a swelling behind the ear. Examination showed hearing to be

impaired; there was a moderate increase in the number of white blood cells; the temperature under the tongue was between 97° and 98° F., and in the rectum 90° F.; the pulse ranged from 58 to 72. At the operation the mastoid cells were found obliterated. On probing the sinus, there was an escape of about $\frac{1}{2}$ drachm of pus containing streptococci. There had not been a single symptom of sinus disease. Three days later a trocar and cannula had been plunged into the cerebellum, and had withdrawn 2 or 3 drachms of pus containing streptococci. This had resulted in temporary improvement. Two days afterward the patient died suddenly of respiratory failure. In the anterior part of the right half of the cerebellum were two abscesses, the anterior one having been opened. The right lateral sinus was entirely, and the longitudinal sinus partly, obliterated by contained organized blood-clot.

A Year's Experience in the Treatment of Stricture of the Eustachian Tube by Means of the Electric Bougie. DR. THOMAS J. HARRIS, of New York City, read this paper, based on an experience of the past year with thirty-three cases.

Each case had been carefully tested with the tuning-fork. In the majority of cases a silver catheter wound with thin rubber had been used, and a current of not more than 3 milliamperes had generally been passed. The current was not increased as soon as there was any bubbling in the ear, and the negative application of the current was not continued for more than five minutes. Inflation was not practised afterward. Of the 33 cases 24 had tinnitus of a chronic nature, and of this number 1 was cured, 13 were improved, and 12 were not improved. Only 13 complained of difficulty in hearing, and of these 12 were improved. In only 2 cases out of 25 in which strictures were present was the tinnitus cured permanently. The strictures were successfully passed in all but 1 case. Eight out of 17 cases showed material improvement in hearing. He was convinced that the electrical current, even when properly used, was capable of causing adhesions of the tube, and, according to his experience, the effect of the current in relaxing the stricture was not permanent. In spite of aseptic precautions, suppuration of the ear had followed in three instances. One case was mentioned in which electrolysis had caused sudden and severe pain, followed within a few days by suppuration of the ear and extension into the mastoid. Evidently in this case there was a short tube. This case served to show that the method of electrolysis was not free from danger. The author concluded that this treatment

should be used after, and not before, other methods, and that it was questionable if these strictures were really fibrous.

Dr. GEORGE L. RICHARDS, of Fall River, Mass., said that it was important not to use inflation immediately after the use of the bougie. He had done this once, and had been unfortunate enough to blow some air into the tissues around the Eustachian tube. As to the patient's sensations, he could speak from personal experience. He had had the Eustachian tube catheterized before the days of cocaine, and had also submitted to Eustachian electrolysis in the hands of Dr. J. A. Kenefick. The operation had not been painful, and after three or four minutes there had been a sensation as though something had given way, and as though air had entered the tympanic cavity—a sensation which he had never experienced in the previous catheterizations.

Dr. WENDELL C. PHILLIPS, of New York City, said that he had watched Dr. Harris's work in his clinic with great interest. His own experience with the method corresponded exactly with that described in the paper. He believed it was a useful method of treating strictures of the Eustachian tube, but it was not a cure-all, and he did not believe the electricity had any permanent effect on the stricture as applied in these cases. He was inclined to agree with a recent statement of Dr. Dench, that the results were most what one would expect to achieve by the use of any bougie, with or without electricity. There was, however, one slight advantage—*i.e.*, it was an easy mode of passing through the stricture, because of the temporary relaxation caused by the electric current. The speaker said that some years ago he had suffered from very severe tinnitus in the right ear. At that time Dr. Dench had passed in an ordinary bougie, with entire and permanent relief of the tinnitus. Tinnitus was certainly very much relieved by electrolysis of the Eustachian tube. As to the case of mastoid involvement reported in the paper, he believed the explanation of this complication was to be found in the supposition that they had not waited long enough after the attack of grip for the bacilli to disappear. There was some danger of these bougies breaking, as shown by this accident having occurred even in experienced hands.

Dr. N. L. WILSON said that his limited experience confirmed most of what had been said by Dr. Phillips. However, he had had one case in which he had been unable to introduce the ordinary bougie, and yet the electro-bougie had passed readily. Having passed the stricture with this instrument, he was accustomed to use an ordinary bougie to complete the work. He also had

experienced the introduction of the electro-bougie, and had found it quite painful.

Dr. G. B. McAULIFFE, of New York City, stated that the action was not truly electrolytic, but a tonic one on the muscular and vascular portions of the tube; that the difference in the amount of bubbling depended on the amount of moisture present in the tube: that it was not practicable to melt a stricture without substituting another scar surface. He asked if the electrolytic action had ever been done under sight on the surface of the body.

Dr. W. P. BRANDEGEE, of New York City, said that this method had proved to be thoroughly practical. In cases at the New York Eye and Ear Infirmary he had noticed a distinct and permanent result in nearly every case. The cases had gone around to various clinics complaining of tinnitus and deafness, and had not received benefit until subjected to this treatment. They had not stopped to theorize, but they did know that the tinnitus had been greatly diminished and the hearing markedly increased. The tactile sensation conveyed to the operator in the passage of the electro-bougie should be sufficient to warn him when he has reached the tympanum. The stricture was often not met with until one reached the mouth of the tympanic cavity. In the last two or three years they had used the bougie in over 150 cases, and in not a single one had there been suppuration. The instruments had all been carefully boiled. He was not aware that he had ever made a false passage, and thought there was much more danger of such an occurrence with the ordinary bougie, because of the force used.

Dr. C. DUNBAR ROY, of Atlanta, Ga., said that for the past thirteen months he had been using electrolysis of the Eustachian tube, and had been impressed with the part played by the personal equation. In the first few months he had had rather poor results; in the last four months the results had been far better. He believed the Eustachian bougie was most useful in selected cases of tinnitus and deafness. He had employed it entirely in private practice, and had obtained far better results than by any other method. He used the chloride of silver battery and 5 milli-amperes of current. He never used anything but a solid silver catheter that he could bend to fit the nasopharynx and make enter the tube. With a hard rubber catheter he never felt sure of the direction and location of the instrument. In some cases he had obtained excellent results with a whalebone bougie, but when this failed he resorted to the electro-bougie. The amount of pain attendant upon the treatment varied considerably in different

individuals. He had never observed any infection or any irritation of the drum. In his ten cases the results had been most satisfactory.

Dr. D. S. DOUGHERTY, of New York City, spoke by invitation. He said that some years ago he had been deeply interested in the relief of urethral stricture by electrolysis. At that time he had collated about 200 cases. The permanent cures amounted to 12 per cent., and in these he believed the good result was not from the electrolysis, but from the bougie, just as from an ordinary bougie. In cases in which the stricture was temporarily impassable, he always succeeded in passing the electro-bougie.

Dr. J. A. KENEFICK, of New York City, said that the condition of the tube could be determined in most cases by the use of the otoscope under inflation. When the obstruction was situated near the tympanic orifice, one was apt to be misled by the sound striking this obstruction instead of the drum. He would like to ask Dr. Harris whether in the case in which an adhesion was afterward found at the mouth of the tube the catheter used was metallic. If the tip of the metallic catheter were not properly insulated, some action was likely to take place at the entrance to the tube. At the tympanic cavity considerable obstruction might be met with until the current was turned on. In an experience of nearly three years with over 100 cases he had never had suppuration or any other untoward results. The sensation of freedom imparted to the bougie indicated to him when the bougie had entered the tympanic cavity. Again, the facial expression of the patient changes the moment the bougie enters this cavity, this region being much more sensitive than the tube. In some cases it was necessary to employ the treatment two or three times before overcoming the obstruction.

Dr. ARTHUR B. DUEL, of New York City, said that a paper like the one under discussion must always prove useful, because of the careful and faithful analysis of the cases presented. He had himself never advocated this mode of treatment as a cure-all. In every case of catarrhal otitis media at some stage the Eustachian tube would become obstructed, and there would result tinnitus, deafness, and perhaps also vertigo. The one thing to be accomplished in such cases was the ventilation of the tympanum by the opening of the Eustachian tube. Although Dr. Harris's one year's experience had led him to speak of the method in a somewhat detrimental way, it should be remembered that other speakers had given a much more favourable report on the method, founded upon an experience of from three to five years. A permanent

opening up of the Eustachian tube could be accomplished much more quickly by this method than by any other. It was not a mechanical effect, as was the case with ordinary bougies.

Dr. EDWARD B. DENCH, of New York City, said that if electrolysis of the Eustachian tube had accomplished nothing more than elicit this discussion, it had certainly done a good deal for otology. He agreed pretty well with Dr. Harris in what he had said. He believed the method was perfectly safe if practised according to the principles of aseptic surgery. He had used the ordinary bougie in grip cases, and had had suppuration. The choice of the instrument must vary with the individual operator. When he could not get the ordinary instrument through, he would use the electrolytic method; until then he perhaps would not try it. He had had these obstructions recur after the use of the simple bougie, and had seen cases recur after the prolonged use of the electro-bougie. A very slight difference in the curve given to the bougie would explain the varying difficulty experienced on different days in passing the instrument. Air might get through, and yet the instrument would not take the abrupt turn. Again, on certain days the mucous membrane of the tube would be more swollen than on others, and that, too, in certain portions of the tube. Mention was made of a case of partial occlusion of the external auditory meatus in which dilatation by electrolysis had been tried after division with a knife. Although the conditions seemed favourable, and the operation could be actually witnessed, electrolysis had accomplished nothing.

Dr. N. H. PIERCE, of Chicago, called attention to the fact that the mucous membrane lining the Eustachian tube is not smooth, but is in folds, and that there may also be more or less obstruction from adenoid tissue. Strictures occur most frequently at the isthmus. In the future work in this field it was most important to make a careful diagnosis. In stapes ankylosis, or in various conditions of the middle ear, electrolysis of the Eustachian tube could not do good.

Dr. T. P. BERENS said that in unskilled hands electrolysis of the Eustachian tube was a dangerous and formidable procedure. The cases most benefited by it had been those strictures in a small part of the tube only.

Dr. HARRIS, in closing the discussion, said that he believed the metal bougie was used in the case in which adhesion was found at the mouth of the tube. In every case a celluloid bougie had been passed before trying electrolysis. In the hands of competent persons, thoroughly acquainted with the technique, the method

was probably free from danger, but under other circumstances it certainly was not free from risk.

Simple Operations on the Inferior Turbinate in Place of Cauterization. Dr. JOHN F. WOODWARD, of Norfolk, Va., was the author of this paper.

He used the cautery in the first stages of hypertrophy only. The complete removal of the inferior turbinate was seldom necessary. The object should be to secure the greatest amount of air-space with the least destruction of tissue. He makes use of scissors having short-cutting blades, one being serrated. He also has a snare which can be used with one hand. The parts are prepared for the operation by antiseptic washes and the use of a solution of suprarenal extract.

Chronic Nasopharyngeal Bursitis. Dr. C. DUNBAR ROY, of Atlanta, Ga., read this paper.

He expressed the conviction that adenoids were present in all children, and that they are not the result of climate, but are greatly influenced in their growth by climate. The anatomy of the region was reviewed, and the statement made that anatomists were not agreed as to the existence of the pharyngeal tonsil. Those who dispute the existence of this bursa, he felt sure, did so because of anatomical and not clinical study. He personally believed there were certain cases of nasopharyngeal catarrh which were dependent upon a pathological state of this bursa. He believed this bursa was only rarely present. The treatment that had succeeded best in his hands was the application of a solution of nitrate of silver, 60 grains to the ounce, applied directly to the surface affected, and then spraying with hot melted vaseline and orthoform.

Dr. C. G. COAKLEY, of New York City, said that he had seen cases similar to those reported in the paper, and he had always regarded them as the result of a peculiar arrangement of the lymphoid tissue in the nasopharynx. The formation of deep recesses was undoubted, and some of them extend down even to the periosteum of the bone. In the cases under discussion he thought there was a deep recess passing under a band of connective tissue. He had curetted such a case with temporary benefit only. The relapse had been found to be caused by a retention of secretion, and on the thorough removal of the secretion from the blind pouch, the parts had healed permanently. The curette passes over the pouch without removing this material.

Diseases of Stenson's Duct and the Treatment. Dr. CARL E. MUNGER, of Waterbury, Conn., read this paper.

Acute and primary inflammation of this duct, he said, might follow exposure to cold and retention of secretion. Stenosis might result from ulceration or impaction of calculi and other foreign bodies. Fistula might form, and open either externally or internally. Simple chemical tests would show whether or not the fluid was really saliva. Injuries to the duct, whether the result of operation or other traumatism, should be attended to at once to prevent the formation of fistula. Stricture could only be overcome with difficulty by dilatation. If near the buccal orifice, dilatation with forceps would probably be satisfactory, but if the obstruction were near the gland an operation would be demanded. Where the parotid gland was the seat of an abscess or broken down tissue incision was imperative, but it must be remembered that, as this results in a parotid fistula, the operation was only the beginning of treatment.

Tympanic Vertigo due to Obstruction of the Eustachian Tube. Dr. WILLIAM P. BRANDEGEE, of New York City, read this paper.

He said that vertigo could be divided into four varieties, viz. : (1) Vertigo incident to diseases of the heart ; (2) vertigo complicating disease of the stomach and intestinal tract ; (3) vertigo associated with diseases of the eye ; and (4) vertigo dependent upon diseases of the ear. Vertigo in connection with ear-disease is almost always associated with tinnitus. When there was only moderate deafness, vertigo was not usually complained of. The lower tone limit was nearly always raised. Vertigo due to aural disorder was either subjective or objective, and the vertigo varied from slight giddiness to an inability to stand up or walk. The vertigo was usually referred to the side on which the lesion exists. The first effort should be to strike at the root of the disorder by restoring the lumen of the Eustachian tube. The most rapid and effective method of accomplishing this, in his opinion, was by electrolysis. By the aid of the current from the negative pole the bougie could be readily passed, whereas with the ordinary bougie undue force would be required. The method caused a minimum amount of pain and produced the minimum amount of trauma, and allowed of the utmost delicacy of manipulation. The smallest bougie, with a tip 1 millimetre in diameter, was preferred for the first treatment, and a current of from 25 to 40 volts and from 2 to 5 milliamperes should be used. Electrolysis, and not the cauterization, was desired. The negative pole

should be attached to the bougie, and the positive electrode held in the hand. Before passing the bougie, the mouth of the Eustachian tube should be thoroughly anæsthetized with cocaine. To be effective, the tip of the bougie should pass within the tympanic cavity, and inflation should not be done for forty-eight hours.

Toxic Rhinitis. Dr. CHARLES P. GRAYSON, of Philadelphia, was the author of this paper.

He expressed the belief that nine-tenths of the cases of rhinitis were the result not of exposure to cold, as often stated, but rather to a toxæmia—in other words, that rarely, if ever, could it be said that a person whose metabolic processes are normal can “take cold.” He was inclined to believe that wet dinners, rather than wet feet, were responsible for many cases of acute rhinitis. The people who are the greatest sufferers from periodical rhinitis are those who are indulgent at the table, or who will not take that amount of exercise which might make amends for errors at the table. The local treatment of such attacks must be but palliative, and is of small moment. For these reasons he strongly condemned the now very prevalent custom of prescribing “rhinitis” tablets, composed of opium, belladonna, and aconite. It was far better to prescribe horseback or other exercises, followed by a cool bath and a rub down, than the usual coddling treatment for colds.

Immunization in Hay-Fever: A Report of Two Years' Experience. Dr. H. HOLBROOK CURTIS, of New York City, read this paper, which was a supplementary report on what he had presented on this subject before the last meeting of the American Medical Association.

He had begun his experiments in this field by administering hypodermically a sterilized infusion of roses. After two weeks of this treatment the lady had been able to stand the effect of the odour of roses. He had then treated this neurotic individual by similar preparations of violets and lilies, and with equally good result. He had next noted that other flowers than these could be included in a bouquet without causing the distress formerly experienced. He had then determined to apply this therapeutic principle to hay-fever, and as a result Fraser and Co., apothecaries, of New York City, had placed on the market, in August, 1900, a preparation of the fluid extract of ragweed with aromatics, which was sold under the name of “Liquor Ambrosio.” With each bottle a printed blank had been sent out, with a request for the co-opera-

tion of those using the remedy in systematically studying it. At the end of four weeks after sending it out, reports had been received of 18 complete recoveries, of 4 cases showing considerable improvement, and of 12 cases in which the result had been negative. About 3,000 bottles had been sent out. Many letters were read to show what had been the results, both favourable and otherwise. After studying these reports, and considering his own experience with about 100 cases, he had come to the conclusion that in those cases of hay-fever due entirely to the ragweed immunization could be secured in about 60 per cent. of the cases, but that in cases of mixed infection, with a preponderance of asthmatic symptoms, a nasal spray of suprarenal extract or of adrenalin should be employed.

Dr. H. L. WAGNER said that of late the studies of immunization had become most interesting. Having heard of Dr. Curtis's experiments, he had undertaken the analysis of various extracts of flowers, with the object of ascertaining what effect they might have on the serum of the blood. It seemed that the so-called glycosides of the vegetable kingdom form certain chemical combinations with the albuminoid products of the blood. He did not refer to the serum-albumin or the serum-globulin. He fully agreed with Dr. Grayson that cases of toxic rhinitis often result from the formation of certain acid products of fermentation. Just as some individuals were peculiarly sensitive to such toxins in the blood, and exhibited this idiosyncrasy by the development of rhinitis, so persons might be peculiarly sensitive to the glycosides of flowers. He intended to continue his study of this subject, and hoped to report upon it in a year or two. He had had patients develop symptoms of hay-fever after riding behind a horse, whether or not the animal had been well groomed. The peculiar smell of the horse is due to hippuric acid, and hence it had occurred to him to try injections of horse urine. Instead of this, however, he had decided, for various reasons, to employ pure hippuric acid. He had used a solution of hippuric acid of the strength of 3 to 3.5 per cent. One or 2 cubic centimetres were injected every third or fourth day. One of the individuals thus experimented on, after eight or ten weeks of the treatment, was able to drive without developing the symptoms formerly observed. The speaker said it had occurred to him that this result might possibly have been dependent upon suggestion, yet it was not inconceivable that the glycosides of flowers might combine with the side-chains of substances in the blood. He thought the subject was worthy of thoughtful and extended study.

Dr. E. L. VANSANT, of Philadelphia, said that this subject of

immunization was certainly most fascinating. The use of cow-pox against small-pox and of antitoxin against diphtheria were notable examples of achievements in this field. Hay-fever was certainly more or less of a neurosis, and he was inclined to think that the idea of being made immune to a disease from which one had been suffering from year to year would have a profound effect on the nervous system, and this would account for some of the beneficial results reported. The nearest approach to the action of a remedy similar to that recommended by Dr. Curtis would be that of quinine in malaria fever. That had a certain power to make one immune to malarial infection, but there the infection was a specific one, and the action of quinine appeared to be a specific one upon the malarial plasmodium in the blood. He was of the opinion that numerous examinations of the blood in cases of hay-fever might bring out valuable information.

Dr. PRICE BROWN said that Dr. Curtis deserved the thanks of the members for having so persistently followed out one line of investigation. One point in that investigation, however, had been left out, even so far as the title of the paper itself—"Hay-Fever." Apparently he had taken no cognizance of the effect of hay. Dr. Brown said that he had known men to develop attacks of hay-fever after having been engaged in throwing pure timothy hay. Mention was made of a man who had sneezed more than one hundred times, simply because he had thrown out one load of hay.

Dr. F. H. KOYLE, of Hornellsville, N.Y., said that he had had one case of a woman who had never suffered from symptoms of hay-fever except when riding behind a horse.

Dr. L. F. PAGE said that the reported results from treatment with the tincture of ragweed are certainly encouraging. He had several patients who had been unpleasantly affected by driving behind a horse, and he had come to the conclusion that this was due to the hair of the animal having become saturated with the pollen of various plants rather than from any peculiar emanation from the animal. For several years he had secured good results in the treatment of hay-fever by restoring proper drainage, and as nearly as possible normal conditions of the mucous membrane, together with proper attention to the eliminating action of the skin and bowels. Various abnormalities of the nose, by causing pressure irritation in persons predisposed to hay-fever, were often responsible for the occurrence of this disorder. He knew of several cases that had been entirely relieved years after all of the abnormalities of the nasal cavities had been removed; the disturbed nerve centres had had time to regain normal resistance.

Dr. N. L. WILSON said that from the letters read by Dr. Curtis he had been persuaded to give the remedy another trial. He had used it in eight cases last year, and the only results noted had been the production of nausea and an increase of the discomfort of the patient. He had been disposed to discard this treatment, not only because of these clinical results, but because one of his patients always had an attack after driving behind a horse, and another patient developed hay-fever after riding a bicycle on a dusty road. Surely Dr. Curtis could not be expected to add the fluid extract of dust to his preparation.

Dr. C. F. MCGAHAN said that his summer practice for many years had been in the home of hay-fever. Formerly those who came there were immune to the disease; in later years they had had light attacks, usually after the prevailing wind had been from the north-west. Several years ago, when assistant to Dr. Geddings, 5,000 letters had been sent out to the laity with the idea of securing information about hay-fever, but the result was of but little value. In his locality these hay-fever patients do not drive except after a rain, for they always develop symptoms of hay-fever. He also knew of a gentleman who had a stable about as clean as one's kitchen, and whose horses were beautifully groomed, and yet he also had hay-fever after driving behind the horse in the hay-fever season. It used to be said that the ragweed does not grow in the mountains, and hence persons are exempt from hay-fever there; but this was not true, because the ragweed had been found in these regions. Even the planting of corn had been deprecated by some hay-fever sufferers, lest it might ruin this region as a haven for sufferers from this disease.

Dr. J. A. STRUCKY, of Lexington, Ky., said that he had tried Dr. Curtis's preparation, and had forwarded to him the results. In three cases the patients thought they were benefited, but they remarked that the ragweed was less virulent last season. In eight cases he had been unable to see any appreciable result, while he had obtained considerable relief from the use of a solution of suprarenal extract and chloretone, 1 part with 7 parts of an alkaline solution, either Dobell's or Seiler's solution.

Dr. T. J. HARRIS said that only that very day he had been talking with a patient who always had a rose cold on May 20, which disappeared on July 3. He had given this woman no treatment directed to the nose, but had endeavoured to correct the high acidity of the urine and improve the condition of her stomach. Under such treatment at one time she had gone the whole year without any rose cold. The latter was now five days overdue, so

that it was possible that the treatment mentioned would again secure for her immunity this year.

Dr. E. E. HOLT said that a classmate of his had been unable to ride behind a horse at any time in the year, although he had tried various methods of grooming and cleaning the horse.

Dr. CURTIS, in closing, said that in a previous communication he had cited a case in which a man had been unable to live in London since twelve years of age. He could not pass a horse in the street without having a dreadful coryza. Many specialists in London had experimented with him. It had been found that he could ride behind a horse that had been vaselined, and would not develop any symptoms until after about one hour. Persons who are sensitive to the emanations from the horse develop the symptoms when riding in a sleigh, thus eliminating the question of dust. Some persons are sensitive to emanations from elephants, cats, and mice. A rose cold occurs even when there are no roses about, and is the result of an erectile tumefaction. In the later stages a true œdema supervened. He believed the most important thing in the treatment of hay-fever was the elimination of uric acid, and that this was proved by the effect of low diet. He knew several opera-singers whose vocal cords were so sensitive to the emanations that if exposed to such emanations in a room they would be unable to sing. Enough encouragement had been found in the reports received by Fraser and Co. to lead them to manufacture 50,000 bottles for this season's consumption. He was of the opinion that the fluid extract was the more efficient preparation.

Management of Acute Otitis Media. Dr. F. L. JACK, of Boston, Mass., read this paper.

He said that the object of treatment in the first stage was to keep open the tube. In children the Politzer bag should be used; in adults the Eustachian catheter. If the inflation were done too energetically, the inflammation would be increased. The pain was best relieved by dry heat; poultices could not be too strongly condemned. Of instillations, oily mixtures were the least objectionable. In the second stage there was a collection of fluid in the middle ear and a bulging of the drum membrane. A free incision of the drum was of the greatest importance, and not only gave prompt relief, but tended to prevent mastoid complications. Many cases of catarrhal deafness were made worse by a neglect to free the middle ear of fluid. The opening should be made at the point of greatest bulging, and the incision should be free. He thought children suffered more from giving a general anæsthetic than from

incision without it; in adults ether, chloroform, and even nitrous oxide might be used. The ear should be inflated at intervals until hearing was restored.

Early Treatment of Mastoiditis. Dr. CHARLES W. RICHARDSON, of Washington, D.C., was the author of this paper.

The first and most important indication for treatment, he said, was the early and free incision of the tympanic membrane. This incision not only relieves the pain, but limits inflammatory activity. The second important indication was rest, yet, as a rule, little attention was given to it. The patient should be kept in bed until the temperature had remained normal for two or three days, and all tenderness had disappeared. During this period the diet should be fluid, and the bowels should be kept open. The third indication was the removal of the discharge. Frequent gentle irrigation with water at a temperature of 110° F. seemed to him to give the greatest comfort. The fourth important indication was to prevent infection of the mastoid, or arrest it when it had taken place. This was best done by the continued and persistent application of ice over the mastoid. He preferred the ice-bag to the coil, as it was more manageable, and the degree of temperature was more evenly maintained. Where there was more or less tenderness of the mastoid tip, there could be no question about the urgent need for the application of cold externally. Many cases do not come under observation until spontaneous perforation has taken place, and there were fever and considerable tenderness. The perforation should be enlarged, and ice applied continuously and persistently as long as there was evidence of improvement. On the other hand, should no improvement be observed for a period of forty-eight hours after the application of ice, radical intervention was essential. The development of œdema over the mastoid, or the sinking of the posterior superior wall of the auditory canal, indicated the presence of purulent accumulation, and demanded radical intervention at once. Too much importance should not be given to the apparent improvement in the less essential symptoms, for by so doing one was apt to be misled. The greatest weight should be attached to the lessening of tenderness and the improvement in the character of the discharge.

Dr. EDWARD B. DENCH said that he was in almost perfect accord with what had been said by the readers of these papers. He was very glad that Dr. Jack approved of inflation in the very early stages. He was certain that in a number of cases he had seen an acute inflammatory process within the tympanum aborted by the

gentle use of the Eustachian catheter to restore the balance, as it were, of the drum membrane. In this congestive stage the proper use of the catheter accomplishes very much what a supporting bandage does in an inflamed limb—*i.e.*, it restores the circulation to the normal condition. If the infection were not too virulent, the disease might not go beyond the stage of congestion. He preferred the catheter to the Politzer bag, except in very young children, where it was practically impossible to use the catheter. He had had no experience with adrenalin, but he knew that the application of a solution of nitrate of silver, of a strength varying from 10 to 40 grains to the ounce, is efficacious in many of these cases. Dry heat was also of great value; the best way to spoil a good ear was to poultice it. With reference to the use of oils, he was inclined to think that oils do harm by furnishing an excellent nidus for the development of the aspergillus. In the external canal the absence of light with the presence of moisture and heat added to the other favourable conditions for the development of such an organism. The result of the instillation of oils was the development of moulds and streptococci. Subsequently it might become necessary to incise the membrane, and under such circumstances it would be found exceedingly difficult to sterilize the canal. As to the advisability of incising the drum membrane when there was no bulging, the speaker said that he believed that sometimes the incision into the drum should be made even when there was no effused fluid. This was particularly true of the cases starting in with very acute pain. His experience with wick drains had not been favourable. His plan was to use irrigation immediately after the incision. Theoretically, sterile water was all right, but practically it seemed to him better to use a solution which was mildly antiseptic. Where numerous streptococci were present, it seemed especially desirable to diminish the virulence of the germs in the canal by such use of an antiseptic. He preferred bichloride solution, 1 to 3,000 or 5,000. He believed in early incision, rest in bed, and the use of cold as a routine treatment, but by this he meant that the case should be under a surgeon's personal observation from its inception. If there were any evidence of mastoid involvement, he was strongly of the opinion that in most cases it was a little dangerous to make use of cold, because of the tendency of such an application to mask the symptoms. He could not agree with Dr. Richardson that the cold should be left on as long as improvement was observed, for he believed if cold did not abort an inflammatory process within forty-eight hours it would not act as an abortive measure, though it might relieve the symptoms. If the coil were left on longer, the

inflammatory process might be arrested in the superficial cells and yet be progressing in the deeper cells, and such treatment might then result in intracranial involvement. Two cases had made him hesitate to use cold. One was the case of a boy who had come into the hospital with pneumonia, and for this reason the mastoid operation had been postponed and cold used. He had been brought to the hospital about six weeks later in coma and with choked disc. He had been promptly operated upon, and a brain abscess evacuated, and the boy had recovered. In the case of a young girl, cold had been left on for three or four days, and all of the symptoms had disappeared. The boy had returned to the hospital about two months later with an abscess in the posterior fossa, and a very extensive destruction of the mastoid process. Infection had taken place through the external surface of the skull, and an abscess had developed between the dura and the bone as a result of that absorption. He believed that the otologist in doubtful cases was just as much warranted in doing an exploratory operation on the mastoid as the general surgeon was justified in doing an exploratory operation in other regions. Such a procedure secures drainage posteriorly, diminishes the risk of serious impairment of hearing, saves the patient from intracranial complications, and shortens the period of convalescence.

Dr. J. F. McKERNON, of New York City, said that two years ago he had read a paper before this society in which he had advocated cold in certain stages of acute mastoiditis, yet the impression had gone forth that he had advised it in all stages. When a case came under observation with beginning tenderness of the mastoid process, he advocated free incision of the drum membrane, absolute rest in bed, fluid diet, free purgation, and the application of the Leiter coil over the mastoid for twenty-four hours. If after this time there was marked tenderness, the coil should be removed, and the case watched for twenty-four or forty-eight hours. If, on the other hand, the tenderness had diminished, the coil should be left off and the case watched. There was no use, of course, in applying the ice-coil if pus were already present. In acute mastoiditis with mastoid tenderness and a condition of congestion only, the application of cold would, in the large majority of cases, abort the process. Where the predominating infection was with streptococci, he was very sceptical as to any measure proving abortive. The discharge from the external meatus should be examined bacteriologically in all of these cases. He thought the time would come when otologists would practice the exploratory mastoid operation advocated by Dr. Dench. In an uncomplicated mastoiditis it was certainly a

perfectly safe operation, and he was glad that this procedure had been so earnestly advocated.

Dr. T. P. BERENS said that the treatment of inflammation of the middle ear should be along the lines of free drainage and cleanliness. Irrigation should be with solutions as hot as can be borne. The Eustachian tube should be opened, and this procedure could be most easily accomplished by the use of adrenalin through the catheter. He believed that heat accomplished much in the early stages of this affection. Confinement to bed was an important factor in cutting short the attack. The nose and pharynx should be kept clean, and internal medication should be resorted to. In the later stages, where there was considerable formation of pus, he found peroxide of hydrogen useful, but it should be added to the hot irrigation and dry cleansing. The effects of extreme cold and extreme heat were practically the same, and as ice masks the symptoms where heat does not, he preferred heat. Many acute cases in which one expects to find pus in the mastoid antrum yield to the treatment outlined, together with the use of hot poultices. This treatment should be persisted in for forty-eight hours, if need be, so long as the patient is comparatively comfortable and there are no urgent symptoms. He had recently had a case completely recover, the mastoid symptoms disappearing after five days of careful nursing. In the removal of the jugular vein one often finds a thin broad sterno-mastoid muscle. By prolonging the incision and splitting this muscle, the vein could be more easily laid bare. It was customary to split the lateral sinus and pack it with gauze; his own practice was to split the sinus the whole length of the diseased area and a little beyond, and then enucleate the split edges, leaving practically an open wound, which could be easily dressed, and which could not possibly contain any pus.

Dr. T. R. CHAMBERS exhibited the ear douche which he employs in connection with water having a temperature of 125° F. He believes that many cases of impending mastoiditis have been cured by this treatment which would never have been cured by any of the methods of treatment already described. He said that he had read a paper on this subject about one year ago, and as a result had received some inquiries regarding this douche. The instrument is made by the Davidson Rubber Company, of Boston. It may be sterilized, taken apart, will fit any ear, and is indestructible. With it water, at a temperature of 125° F. may be used without burning the fingers holding the instrument. It was his rule in every case to make a culture from the discharge as it exudes from the middle ear.

Dr. E. E. HOLT said that in the discussion of this subject many years ago, Dr. Agnew had laid stress upon the importance of having the patient reclining at an angle of 45° . This was a point of some importance, as many patients are comfortable in that position, but suffer a good deal if lying flat on the back. He had long ago learned from experience that many cases of earache could be relieved by introducing into the auditory canal a piece of cotton moistened with spirits of camphor, and having in its centre some red pepper. He felt sure that what had been said in previous meetings of specialists about the use of cold in inflammation of the middle ear had done much harm by encouraging general practitioners to use it indiscriminately, and without regard to the special stage in which it was alone appropriate. It was often difficult to determine whether a mastoiditis was superficial or deep.

Dr. PRICE BROWN cited a case in which acute pain in the middle ear had developed in a lady after exposure to cold. He had applied dry heat, and within thirty-six hours she had developed mastoid tenderness. Her temperature at that time had been 101° F. He had then made a very free incision into the drum, evacuating sero-purulent material. At the same time he had applied a fly blister. He believed in dry treatment, and hence he had not resorted to irrigation, fearing that it would carry infectious matter into the deeper parts. The following day the temperature had been 99° , the discharge had lasted about five days, and the further recovery had been uneventful.

Dr. SARGENT F. SNOW said he was glad to hear Dr. Richardson use the expression, "the persistent application of cold as long as it seems to be doing good," for an experience had shown him that a little latitude could be given to the forty-eight-hour rule, particularly if the case were holding its own. The operation for opening the mastoid was undoubtedly one which was frequently necessary, and of great benefit, but nature, in her efforts to ward off extension of inflammation, throws out a protecting wall. Now, if one opens and clears out a mastoid which is the seat of only slight inflammation and softening, he is very liable to break down this protecting wall, favouring infection of adjacent parts. He believed one should secure free drainage of the mastoid. If, on opening the mastoid, only slight softening were found, it seemed to him sufficient to maintain free drainage, and not disturb the walls. In many cases free incision of the ear drum and of the posterior superior wall was sufficient to give all the drainage required. Sometimes the posterior superior would be found bulging again after the first incision. If this occurred, it should be again incised.

Dr. WENDELL C. PHILLIPS said that he understood Dr. Jack and Dr. Dench to advocate the use of the catheter in acute catarrh of the middle ear. The use of the catheter or inflation of any form in acute inflammatory processes of the middle ear was not unattended by danger. He would hesitate to do this in any cases in which there was an infective process going on in the nose or in the naso-pharynx, because of the danger of carrying some of the infectious material into the Eustachian tube. He referred especially to grip cases. Whether the inflammation was catarrhal or suppurative in these cases, the less one had to do with the Eustachian orifice the better for the patient. He could imagine some cases of catarrhal inflammation where the treatment mentioned by these gentlemen would be safe. He had almost come to the conclusion that in acute inflammation of the mastoid cells, whether or not the ice-coil were used or poultices were used, little influence was exerted upon the process going on in the mastoid cells, and he had almost come to the conclusion that once a mastoid always a mastoid, and that but little could be done in the way of prevention. We should strictly define the varieties of mastoid disease. There was one type which no treatment seemed to him to reach effectively, namely, the grip cases in which streptococci are present. This was the result of his personal experience. On the other hand, if there were mastoid inflammation without these germs—in other words, a congestion or a catarrhal inflammation—the case might be influenced by treatment. Two symptoms and one condition seemed to him to mark the positiveness of the case—*i.e.*, prolonged tenderness over the antrum, bulging of the attic, and the presence of streptococci in the pus. The pus should be examined microscopically in every case. Theoretically, the ice-coil was better than hot applications. Poultices had been both condemned and praised in this discussion. In actual practice it seemed to him that the hot poultice certainly had a very beneficial effect, though admittedly bad in theory. In any case, neither cold nor hot applications should be continued for any length of time. In the past six months in a rather large service he had taken off the ice-coil at the end of twenty-four hours, and had not reapplied it for fear that the longer application would mask the symptoms. Some physicians made it a routine practice to attempt to abort a mastoid case by the use of the ice-coil, yet he would insist that there were many cases which were undoubtedly operative from the time they first came under observation. He could not see how a blister could be of any benefit whatever in such cases.

Dr. J. F. McCaw said that his experience coincided entirely with that of Dr. Dench and Dr. Phillips. He believed that cold in

these cases is entirely out of place. Mention was made of a case seen by him some time ago where consent to operation had been withheld for the time, and the patient had been allowed up and about. He had finally come to the speaker's office with very little tenderness, but a free purulent discharge from the middle ear. Immediate interference had been advised, and a typical mastoid operation had been done the next morning. The mastoid cells were found converted into a carious mass; the wall of the sigmoid was completely carious and covered with pus; yet this patient had gone around the previous afternoon attending to his occupation of civil engineer. The case emphasized the treacherous nature of these cases.

Dr. H. L. WAGNER said that in almost all cases there was a mixed infection. When there was at first a pneumococcus infection, there would surely be a mixed infection in the course of a few days. If there was a pure pneumococcus infection, the prognosis was good; if the infection were mixed, and especially if streptococci were present, one should be guarded in the prognosis. This form of infection should be regarded as very serious, though he did not think that all of them really needed operation. We should not be satisfied with making an examination of the pus once only, but these examinations should be repeated from time to time until satisfied with the improvement. Clinical intelligence should, however, be superior to the results of these important examinations.

Dr. R. C. MYLES thought that progress was being made as to the importance of understanding the physics and chemistry of inflammation of the middle ear. Wherever free drainage occurred, an operation was rarely required. When pressure caused sloughing of bony as well as soft tissues, and led to necrosis, an operation would probably be required. He did not think quite enough attention was paid to the details of securing this drainage. For instance, the exact method of making the incision to relieve the tension in the mastoid cells was not generally stated, though Dr. Dench had made an effort in this direction. The membrane appears on inspection rather peculiar when an incision is required, and one was apt to be misled as to the exact location and extent of the incision. In some of his cases he had gone so far as to excise a portion of the drum membrane; in others he had made a triangular incision. He had never felt that he had made too free an incision—indeed, the more extensive the incision the better had been the after-results, other things being equal.

Dr. RICHARDSON, in closing, said that he had supposed in his paper that the case was under observation from the very beginning.

One derived a certain amount of intuition in connection with any work in which one has a large experience. Some cases at once indicate to the physician that an operation is required, and, of course, such cases should not be treated by the application of ice. He had had this spring a gentleman with double otitis media and streptococcus infection. The left ear went on to resolution under the application of ice. Five days afterward, and after having applied cold for forty-eight hours, he had done a mastoid operation on the right ear. About the same time he had seen a case in which there had been very little tenderness, and a body temperature of 99° F. There were numerous streptococci in the discharge. The next day he had operated upon both mastoids, and had found extensive disease, with an epidural abscess on one side. These cases were narrated to emphasize the necessity for the use of individual judgment. He had not said anything about ice masking the symptoms, only that one must be extremely careful about observing the symptoms while using the ice. He had seen as bad cases of pneumococcal infection as of streptococcal infection.

Lithæmic Pharyngitis. Dr. J. A. STUCKY, of Lexington, Ky., read this paper.

He said uric acid excites inflammatory reaction in mucous membrane. The excessive elimination of uric acid and the inability of the organs to comply with this demand caused it to be deposited in other organs. The local manifestation of the diathesis might not be confined to the pharynx, but might make its appearance in the nasal and gastro-intestinal tract. The attack causes primarily no lesion. It might be ushered in suddenly by a sensation of fulness in the throat, and increased by swallowing. There was a constant desire to swallow, and the throat had a rigid feeling, and was hot and dry. There was only slight elevation of temperature. The redness and swelling were more marked behind the posterior pillar of the fauces, the other portions of the throat being very slightly congested. The uvula was often rigid, swollen, and œdematous. In most cases there was a pricking and itching, as if a foreign body were present. It was sometimes an immediate precursor of articular rheumatism. Over-indulgence in eating and drinking was often as much the determining cause as exposure to cold. Local treatment was only of value because of its psychological effect. Marked relief was afforded by an initial cleansing out of the nose and throat by a hot alkaline solution. The drugs indicated were those which increase the alkalinity of the blood. The salicylates, com-

bined with minute doses of pilocarpin, should be given, and repeated until a free action of the skin had been secured. Daily exercise, with restricted diet, would give the most favourable and lasting results.

Dr. VANSANT said that a few years ago he had drawn attention to the effect of indulgence in strawberries in causing pharyngitis. Quite a number of people could not indulge in this fruit without suffering from pharyngitis and more or less inflammation of the tonsils.

The Mechanical Treatment of Nasal Synechia, with Demonstration of an Appliance. Dr. F. H. KOYLE, of Hornellsville, N.Y., presented a paper with this title.

After briefly referring to the instrumental treatment of existing synechiæ, he exhibited a splint and the material from which it is made—viz., the modelling composition used by dentists in taking impressions for plates. A block of this is immersed in hot water until soft, and is then removed to a previously warmed wet surface, where it is kneaded or rolled out to the desired thinness. While still soft, a strip is cut off and shaped into a splint; the sharp edges are smoothed down with the fingers. It is absolutely aseptic, light, non-absorbable, and superior in every way to rubber tissue, spunk, ivory, or celluloid. He had been led to use this material, others having been found unsatisfactory, because of the impossibility of using anything other than an easily moulded concave-convex splint in certain septum cases where operation was refused. Some of his patients had worn this splint material for three weeks without annoyance or unpleasant consequences.

Dr. PRICE BROWN said that rubber was just as aseptic as the composition presented. It was true it had an odour, but it could be left in any length of time, and, being compressible, it retained its position better. He had now a case that had worn a rubber splint without discomfort for four weeks, and he would leave it in position for five weeks more. The material was readily manipulated, using only a file and knife. He had used the rubber for three years, and had been greatly pleased with it.

Dr. KOYLE said that he often introduced this composition into the nose while warm and soft. The peculiar advantage of the material was that it could be moulded after having been placed in position.

Report of an Interesting Case of Aneurism of the Internal Carotid Artery. Dr. WALTER B. JOHNSON, of Paterson, N.J., made this report.

The patient was an Italian boy of five years, first seen in consultation on March 15, 1900. Ten days previously the child had an inflammation of the throat and a swelling in the region of the left tonsil, associated with the usual symptoms of peritonsillar inflammation. Possibly traumatism might have been inflicted that afternoon by an Italian midwife attempting to rupture the swelling with her finger. That evening Dr. Banta had been called, and found bleeding from the ear. During a subsequent examination the child struggled violently, and there was a sudden gush of blood from the left ear. At this time Dr. Johnson had been called in consultation. There was a tense swelling below the ear, which seemed to be limited by the fossa of the neck. No pulsation or aneurismal bruit could be detected. There was a dusky-red, non-pulsating tumour in the left tonsillar region. A diagnosis of dissecting aneurism had been made. When examined on March 31, the tympanic membrane of the left ear had a large perforation, and rather thick serous fluid escaped from the junction of the auditory canal and tympanum. When next seen the statement was made that during an attack of enteritis and fever the tumour had suddenly increased, and the child had become comatose. Another physician had expressed the opinion that the tonsillar swelling was a malignant growth. The general opinion of a number of surgeons who saw the case was that this swelling was not an aneurism. On June 13 tracheotomy had been done by Dr. Johnson, and two exploratory punctures of the tumour had been made, the remaining part of the left tonsil removed. The tumour mass was examined by a pathologist, and the opinion expressed that it was not carcinomatous or tubercular. The patient improved after this, with the exception of two attacks of bronchitis. On September 7 the child had been almost exsanguinated by a sudden and severe hæmorrhage from the nose. Death occurred on September 10 from a second hæmorrhage. No autopsy was permitted. Ligation of the carotid had been considered the previous spring, but, owing to the general opinion of the consulting surgeons that it was not an aneurism, this operation had not been attempted. The intention had been to do this operation if the tumour bled on exploratory puncture, but it had not done so.

Subarachnoid Injection of Cocaine as a General Anæsthetic for Operations on the Head. Dr. REDMOND W. PAYNE, of San Francisco, was the author of this paper.

He believed that Dr. A. W. Morton, of San Francisco, had been the first to demonstrate that a subarachnoid injection of cocaine in the lumbar region was capable of producing anæsthesia all over the body. To do this it was only necessary to point the needle upward and force in the cocaine quickly, the rapidity of the injection being the chief point. His own experience with this special form of subarachnoid injection of cocaine comprised only 10 cases, but he had had an opportunity of seeing most of the 270 cases operated upon by Dr. Morton. The injection was made in the median line between the third and fourth lumbar vertebræ. The skin was first frozen with ethyl-chloride. No injection should be made until the operator sees the cerebro-spinal fluid. The patient assumes the straight position before the injection of the cocaine. From 18 to 25 minims of a 2 per cent. solution of cocaine should be used for operations on the head, and the head and upper part of the body should be elevated in order to favour the diffusion of the cocaine solution upward. It was most important to use a freshly-made solution of cocaine, sterilized *crystalline* cocaine being dissolved at the time. Dr. Riley, of San Francisco, had shown that the anæsthetic properties of cocaine were not in the least affected by sterilizing crystalline cocaine by exposure to a temperature of 300° F. for twenty minutes. Cocaine so sterilized was put up in glass vials. From eighteen to thirty minutes were necessary to secure satisfactory anæsthesia of the head.

Dr. OTTO J. STEIN, of Chicago, said that the difficulty of sterilizing cocaine had always constituted an important obstacle to its successful use in subarachnoid injections. Dr. Harold N. Moyer had done away with all this difficulty by substituting eucaine. This is readily sterilized by boiling, and, so far as he knew, had produced equally good anæsthetic effects when used in 4 per cent. solution.

Dr. PAYNE replied that eucaine had not been found to possess the reliable anæsthetic properties of cocaine.

Papillomatous Growths of the Soft Palate. Dr. WILLIAM F. DUDLEY, of Brooklyn, N.Y., reported a case of neoplasm, resembling papilloma, occurring upon the velum palati of a man aged seventy-one years.

The growths were remarkable for their large size and peculiar odour. The parent mass was $\frac{7}{8}$ inch in diameter, and had an

elevation of $\frac{3}{16}$ inch. The surface was coated with soft, pulpy detritus, and was pearl-white in colour. This physical aspect is extremely rare, only two similar papillomatous growths having been reported—one by Dr. J. W. Gleitsmann and the other by Dr. J. S. Gibb. The tumours were posterior to the margin of a hard rubber dental plate, which had been worn for twenty years, without producing any local inflammation. The patient had smoked twelve cigars daily for twenty years, and it is believed that the papillomatous growths were caused by the irritating smoke-current impinging against the soft palate, the hard palate being protected by the dental plate. The patient suffered from severe dysphagia, loss of sleep, and salivation. His general health was impaired to a dangerous degree. Sample sections of the neoplasm were pronounced of malignant character by one pathologist, but this diagnosis was questioned by Dr. Jonathan Wright, and with his assistance the tumours were excised by means of a cold wire snare. The wounds healed rapidly, and there is no evidence of recurrence. It is eighteen months since the operation. The patient has gained 32 pounds in weight.

Variations in the Technique of Septum Operations. Dr. STEPHEN H. LUTZ, of Brooklyn, N.Y., read an abstract of this paper.

He said that he had found it a good plan to use the breaking-forceps first, instead of cutting first. By this reversal of the method, cutting would often not be required, unless there were spurs present. He uses splints made of dental-plate composition, each splint being moulded and made during the operation to fit the case.

Dr. C. W. RICHARDSON commended the author for this practical suggestion.

Dr. T. R. CHAMBERS said that he practised the Gleason operation, and in that no breaking was required.

Abstracts.

MOUTH, Etc.

Oppenheimer, S.—*A Case of Primary Epithelioma of the Uvula.* "Med. Record," August 10, 1901.

In this case the patient was a man, aged eighty-one, who for the past year had complained of irritation in his throat. At various times he was examined, with, however, negative results. For a few weeks before being seen by the author a thickening of the tip of the uvula was noticed, which rapidly increased and involved the whole of the organ, which grew as large as an ordinary walnut. The growth was bluish-red in colour, not ulcerated, and firm to the touch. The cervical glands were slightly enlarged, but not tender. Slight pain was complained of radiating to the ears. A small piece of the growth was removed, and on microscopic examination presented the characters of an epithelioma. Operative interference was deemed inadvisable. The author remarks upon the rarity of such cases, and refers to the published cases of Lennox Brown and Walter Downie.

In favourable conditions for operation complete cure may be effected. Ulceration of a primary epithelioma of the uvula does not take place until a late stage of the disease. The most usual symptom complained of by the patient is faucial irritation, due to moderate inflammatory reaction and slight œdema of neighbouring tissues. *W. Milligan.*

Oren, S. H.—*Report of a Case of "Epithelioma" involving Tonsil, Faucial Pillar, and Tongue, with Treatment and Apparent Cure.* "Journal Amer. Med. Assoc.," August 10, 1901.

The growth was microscopically diagnosed as an epithelioma. Hypodermic injections of pure alcohol were made in several places outside the periphery of the ulcer and in and above the anterior faucial pillar. Inflammatory reaction resulted, leaving a circumscribed hard mass. This indurated area was ultimately dissected out, the base being curetted and cauterized. No return of symptoms had taken place after the interval of one year. *W. Milligan.*

NOSE, Etc.

Baratoux, J.—*The Surgery of the Maxillary Antrum in the Eighteenth Century.* "Revue Hebdom. de Laryngologie," etc., February 9, 1901.

This is a short account of the methods of opening the maxillary antrum adopted by surgeons of the latter half of the eighteenth century (1753 onwards). *Arthur J. Hutchison.*

Curtis, H. H.—*The Future Treatment of Hay-fever.* "Med. Record," July 13, 1901.

In the treatment of hay-fever the author has tried the internal and hypodermic exhibition of watery extracts of various flowers. In one patient, an unmarried woman, aged thirty-five, who for years had suffered from most severe neurotic coryza, great relief was afforded by

giving doses of a sterilized infusion of roses. Other experiments of a like nature suggested the advisability of trying the effects of solutions of ragweed in cases of severe hay-fever. A tincture and fluid extract of this plant were made up, and various patients were submitted to the treatment. From many observations made by the author, the conclusions formed were that in those cases entirely dependent upon ragweed as the exciting cause immunization could be effected in about 60 per cent. by the internal administration of the tincture of ragweed.

W. Milligan.

Gaudier and Hèze.—*A Case of Sphenoidal Sinusitis.* "L'Echo Méd. du Nord," May 26, 1901.

Mr. X., aged forty-five, suffered from severe headache. The pain came on every night between two and three o'clock, increased in intensity till about five o'clock, then gradually passed off. It commenced always on the right side, radiating to the back of the right eye, to the right jaw and ear, then spread all over the head. The general health became gravely impaired. The pain commenced to pass off after a little white discharge had been blown from the right nostril. Before consulting the authors patient had been treated with all manner of sedatives, antineuralgic, antisyphilitic, etc., medicines.

On examination of nose, pus was found in the right olfactory slit, and traced to the right sphenoidal sinus. After removal of a ridge on septum, and of the posterior half of the middle turbinated and the anterior end of the hypertrophied inferior turbinated bodies, the anterior wall of the right sphenoid sinus was freely removed with a Martin's forceps.

The sinus was next curetted and swabbed with zinc chloride, and, some loose pieces of mucous membrane having been burnt away with galvano-cautery, packed with iodoform gauze. The packing was renewed daily, then every second day. Result: a complete cure.

In cases with wide nares and atrophied turbinals there is but little difficulty in diagnosing and treating a sphenoidal sinus empyema, but where the nares are narrow and the turbinals hypertrophied much difficulty arises. In such cases, however, removal of the posterior half of the middle turbinal will generally give room enough for both diagnostic and curative procedures. Operation through the frontal sinus or maxillary antrum is not justifiable except in cases of multiple sinusitis.

Arthur J. Hutchison.

Lermoyez, M., and Mahu, G.—*Further Researches concerning the Action of Hot Air on the Mucous Membrane of the Upper Air-Passages.* "Annales des Maladies de l'Oreille, du Larynx, du Nez et du Pharynx," July, 1901.

In this the author's second paper on the subject details are given of a number of cases, and the following conclusions arrived at:

1. Experiments, continued since last year, have confirmed the results already obtained by the aërothermic treatment of the following affections: Spasmodic rhinitis; congestive rhinitis, fluctuating; hypertrophic rhinitis; hydrorrhœa, with nasal obstruction, rhinorrhœa, sneezing, asthma, naso-pharyngeal catarrh; otalgias; tubal and tubotympanic catarrhs, with deafness, vertigo, etc. The experiments made by Lichtwitz and Menier, of Bordeaux have given practically similar results.

2. The cures or improvements obtained a year ago, and described in the former communication, have mostly been maintained.

3. The aërothermic treatment has been given several new applications, to the author's entire satisfaction, as follows: Treatment of acute coryza, hay-fever, certain trophic or sensory nerve troubles, and the epidermization of wounds at the end of suppuration. The results obtained, according to the nature of the affections, are interesting, and of a nature to encourage one to continue the application of aërothermic treatment in the diseases of the upper air-passages. A table of results accompanies the paper.

Macleod Yearsley.

THYROID, Etc.

Cristiani.—*Functional Activity of Thyroid Grafts.* "Revue Méd. de la Suisse Romande," January, 1901.

The question whether thyroid grafts ever actively fulfil the functions of the thyroid gland is still discussed by physiologists. Some maintain that a thyroid graft can grow and actively perform the functions of the thyroid gland; others maintain that these grafts merely act as a reservoir of thyroid secretion from which the animal can draw supplies, but that active secretion does not take place. During the time the animal is using up this artificial supply its own accessory thyroids undergo rapid development. If they have reached a sufficiently advanced stage of development before the artificial supply is exhausted the animal lives, and the thyroid graft gets the credit of having taken on the functions of the thyroid gland. Cristiani is of opinion that the graft does become an active gland. In this paper he discusses the question with regard to the vascularization of the graft. When a thyroid graft is implanted in an animal the vessels at first nearly all disappear, then a new formation of vessels takes place. Now, if the graft does not take on active functions, this new formation of vessels should not vary much in different cases, but if the graft becomes an active gland its vascularization may be expected to vary with the activity of the gland. Thus, in an animal in which total extirpation of the thyroid has been performed the graft ought to be very active, therefore highly vascularized; if only partial extirpation has been performed the graft should be less active, therefore less vascularized; whilst if the thyroid has been left intact, the graft need not act at all; the vascularization, therefore, will be very slight. These conditions Cristiani has found to be fulfilled in a number of experimental cases. A coloured plate illustrates the amount of vascularization in different circumstances.

Arthur J. Hutchison.

E A R.

Bernard, Raymond.—*Double Deafness from a Central Cause.* "Annales des Maladies de l'Oreille," etc., August, 1901.

Diseases of the auditory nerves are little known, and somewhat discouraging from their difficulties of study. The author excuses himself for publishing a somewhat incomplete case, on the grounds of the paucity of the literature of the subject. The patient was a young man, formerly of robust health, who was suddenly attacked by severe Ménière's symptoms, with violent headache. When these had ceased,

he was left completely deaf in both ears. Minute examination of the external and middle ears showed that there was complete absence of any disease. The case is described by the author in full detail, who believed the lesion to be in the auditory nerves. Hysteria could be excluded. *Macleod Yearsley.*

Lannois, M., and Chavanne, F.—*On Mastoid Pain in Hysteria.* "Annales des Maladies de l'Oreille, du Larynx, du Nez et du Pharynx," July, 1901.

Opening with a review of the literature of this subject, the authors remind their readers that hysteria may be manifested in the ear under two aspects. They divide their paper into two parts, dealing with (1) hysterical mastoid pain simulating simple mastoiditis, and (2) hysterical mastoid pain simulating mastoiditis complicated by cerebral symptoms. Numerous cases are given, and the etiology, prognosis, and treatment discussed. They suggest, under the latter head, the use of careful suggestion, sometimes combined with a suggestive incision in the skin over the mastoid. *Macleod Yearsley.*

REVIEW.

Atlas der Krankheiten der Nasen, der Nebenhöhlen, und des Nasenrachenraumes. Von Privatdocent Dr. P. H. GERBER, in Königsberg, Pr. (Der Atlas erscheint in 6-7 Lieferungen à 5-6 Tafeln nebst Text, zum Preise von 6 Mark für die Lieferung. Einzelne Lieferungen werden apart nicht abgegeben. Lieferungen 1-4.)

Atlas of Diseases of the Nose, of its Accessory Cavities, and of the Naso-Pharynx. (The Atlas appears in six parts, with five or six plates, with accompanying text; 6 marks for each part. Single parts are not sold.) 1901. S. Krager, Karlstrasse 15, Berlin.

Dr. Gerber dedicates his Atlas to Professor Dr. B. Fränkel, and tells us, in the preface, that his book was already in the Press when the Atlas* we have already reviewed appeared; he was thus forestalled in the privilege of publishing the first nasal atlas, but we are, nevertheless, glad to welcome this valuable addition to our library of rhinological works.

The first plate is of the normal rhinoscopical appearances, with anatomical varieties. Several of the coloured figures in this plate, as well as in all succeeding ones, have black and white keys in the text, thus enabling the student to readily recognise each portion of the figure.

The second plate is devoted to septal deviations; the third to septal deviations of the normal naso-pharynx and its varieties; the fourth to atresia and synechiæ of the naso-pharynx; the fifth to special affections of the septum, as varicosities of the septum, ulcers, abscesses, etc.; the sixth to simple and fibrinous exudations; the seventh to atrophic rhinitis; the eighth to rhinitis atrophica fœtida; the ninth and tenth to hypertrophic rhinitis; the eleventh to thirteenth to hypertrophies of the pharyngeal tonsil; plates fourteen to sixteen to polypi; the seven-

* Dr. Krieg's.

teenth to fibrous and allied tumours; the eighteenth to papillomata and osteomata; the nineteenth and twentieth to sarcomata and carcinomata; the twenty-first to cysts and fatty tumours, rhinoliths and foreign bodies.

The drawings are faithful to nature, and show an accurate observation, and by their means the student will learn what he should see, and will distinguish and appreciate that which he is able to see. As an aid to teaching, their value cannot be too highly estimated.

Speaking generally, the usual departures from the normal, both from a development and histological point of view, have been more considered than rarer diseases, though these have received due attention.

Each drawing of the anterior nares consists of two distinct and separate pictures, either half being represented separately.

We have only to add that the atlas, as far as it has gone, makes a promise of being almost a necessity to every rhinologist, and Dr. Gerber has given to the student and practitioner an invaluable work of reference.

R. Lake.

NEW PREPARATIONS.

THE HENRY HEIL CHEMICAL COMPANY has forwarded to us samples of Borobenphene-Heil and of Glycobenphene-Heil. The former is a new antiseptic and germicide, and the latter a new remedy for eczema.

Borobenphene-Heil possesses the antiseptic properties of boracic acid, sublimed benzoic acid, phenol, etc., and is introduced as a powerful and reliable antiseptic, and at the same time free from irritating and unpleasant properties. It is miscible in all proportions with water, glycerine and alcohol; it promises to be of value in the treatment of diseases of the ear, nose, and throat, and is certainly deserving of an extended trial.

We have received from Messrs. BURROUGHS WELLCOME AND Co. specimens of "Tabloid" Quinine and Camphor and "Tabloid" Quinine, Belladonna and Camphor, the formulæ of which are as follows: "Tabloid" Quinine and Camphor—Quinine Bisulphate, 1 gr.; Camphor, $\frac{1}{5}$ gr. "Tabloid" Quinine, Belladonna and Camphor—Quinine Sulphate, $\frac{1}{4}$ gr.; Green Extract of Belladonna, $\frac{1}{8}$ gr.; Camphor, $\frac{1}{4}$ gr.

Both of these combinations have been found useful in the treatment of the early stages of catarrh, and from one to five of the "Tabloid" Quinine and Camphor, or from one to four of the "Tabloid" Quinine, Belladonna and Camphor, may be prescribed for a single dose. The "Tabloid" brand is a guarantee of the purity of the drugs employed and of accurate dosage.

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**THE APPLICATION OF PHYSICAL SCIENCE TO THE SURGERY
OF DISEASES OF THE THROAT AND NOSE.***

BY JOHN MACINTYRE, M.B., C.M., F.R.S.E. (GLASGOW).

GENTLEMEN,—I have to thank you very sincerely for the unexpected honour of being elected President of our Association for the second time. If I express myself thus simply and briefly, do not think that your kindness is unappreciated; on the contrary, I am deeply grateful, and feel, more than I can express, the unvarying courtesy extended to, and the trust placed in, me by the Fellows of our Association. Permit me to add also that this feeling has been ever present since the day I became an original Fellow of the British Laryngological, Rhinological, and Otological Association.

It is not easy to take an office which has been held by such representatives of our special department as have preceded me, and certainly not to succeed Mr. Mayo Collier in the Presidential chair. In so doing, I would take this opportunity of congratulating him upon the success which has attended his efforts during the past year, and you upon having had one who combined in himself so many of those qualities which, added to a great professional reputation, were bound to leave a lasting impression on our Association. At the beginning of our new session, let me say that we shall feel pleased if our efforts attain to the same standard as characterized last year's work, the results of which were the combined efforts of

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the office-bearers of the Association and the work recorded by the individual Fellows.

If ours is not a very old Association, sufficient time has elapsed in the twelve years of its existence to record many changes for the better in all departments of medicine and surgery. We are richer for the discoveries made in etiology and pathology; great strides have been made in the prevention of disease, while many new methods have been discovered in physical diagnosis, and advances have been recorded in therapeutics.

At the time I had the honour of delivering my first Presidential Address, the classical researches of Lister, which had revolutionized surgery, had been everywhere accepted. Pasteur, whose work had so largely influenced Lister, Koch, Loeffler, Hansen, and others, had still further impressed us with the enormous importance of the study of bacteriology in its relation to medicine and surgery—not only by way of diagnosis, but also in the possibilities of therapeutics. I ventured to bring before the Fellows of this Association some practical points in bacteriology, and of the study of the advantages in our special department, because at that time it was clearly beginning to be appreciated. No one can now read our text-books or journals or visit any clinic without seeing the practical results which have been derived, and everyone will bear testimony to the enormous change for the better in the diagnosis and treatment of affections of the nose, throat, and neighbouring organs. If I quote diphtheria as an example, it is not because it is an isolated one in the study of acute affections, but simply as an illustration of how much can be done by bacteriological examination to insure early diagnosis and more careful treatment at the beginning of a disease, even if we were still sceptical of the results of antitoxin.

As a result of my election to the Presidential chair, my thoughts naturally tended in the direction of some other subject suitable for the occasion, and it occurred to me that a consideration of some of the recent advances in physical science now occupying so much of the attention of the scientific world might be discussed with advantage, particularly if we think of how much has yet to be done in the treatment of chronic affections such as lupus, tubercle, and malignant disease. Think of the enormous stimulus which has been given to medical work by recent developments in physical and chemico-physical science. I am quite aware that there are many other influences at work in stimulating thought, for there is no collateral branch of science which can be ignored by the physician or surgeon. The study of human physiology and pathology will never be placed upon a satisfactory basis until we apply to them

every known fact which we owe to the students of zoology and botany. Nevertheless, a glance at the huge physiological and pathological laboratories, daily increasing in every country, will convince anyone of the enormous influence which the study of chemistry and physics is at present exercising in clinical research.

It is for this reason that I have selected a limited portion of the subject for this address, and I trust you will bear with me if, in referring to some recent discoveries in physical science in their application to medicine and surgery, I occupy your time in placing before you some thoughts and results of researches which, in common with others, I have been making in this direction. The view of the subject of which I will treat more particularly is how far physical science is likely to aid us in the treatment of such chronic affections as have been above referred to, and I shall make special reference to the effect of electrical currents of high potential in the affections of the upper respiratory passages.

Will you pardon me the digression if at this point I refer for a few minutes to some facts in physical science which have a bearing, although not directly, upon our work? The work which has immortalized Faraday kept men occupied throughout the greater part of last century in developing electrical science; but no one lately caused greater interest than Tesla when he first demonstrated his new methods of transforming currents. More recently, we had the famous discovery of Röntgen. The physical world was excited when he announced the X rays, in the hope that he had at last been able to demonstrate the existence of waves in ether other than the transverse forces which had been predicted by the greatest of all living scientists, Lord Kelvin, as far back as his Baltimore Lectures fifteen years ago. Anyone acquainted in the least degree with physical science could not fail to foresee the enormous activity which would follow such an announcement, and the mere fact that Röntgen was able to photograph some bones of the body, to be followed by greater attainments in this direction by others, was as nothing compared with the enormous stimulus which physical science was given in many hitherto unknown directions. Results have followed with unexpected rapidity, as witness the investigations of Crookes, Becquerel, Russell, and others, who have shown us that many hitherto unexpected substances are constantly giving off radiations or stimuli which might be placed somewhere between the ultra-violet rays and the X rays. In a word, the attitude of physicists just now is to describe the universe as one in motion. Here it may not be out of place to submit some classification of the different forces which we now look upon as transverse waves in

ether. If we do not expect the analogy to be too complete, we might compare, as is so frequently done, the different waves to those of sound, or as they are suggested to us by the keys of the piano. Passing from the left or lower notes to the extreme right or higher vibrations, we would place our electric waves, then the heat waves, next our red, green, violet and ultra light, then radio-active substances, and, lastly, X rays—assuming for the moment that they are really transverse waves in ether. To what extent have we benefited in the study of medicine and surgery by these? Tesla's work has been applied by Arsonval in his highest frequency currents; radiant heat has not only of late been applied in its old and well-known methods, but dry heat has been administered at a temperature never dreamt of in past times; light, familiar at all times in its beneficial action in disease, has been studied and most successfully applied by Finsen. Thanks to the work of Becquerel, Crookes, and others, radio-active substances, such as radium, have been tried in skin affections, and I need not point out here that X-rays have also been applied with a considerable amount of success in affections of the skin, while experiments have likewise been tried in the deeper tissues of the body.

My own attention was drawn to these subjects in connection with the Glasgow Royal Infirmary Electrical Department, and, although not engaged in the general work, it was impossible to observe what was being done without thinking of the possibility of these forces being applied in our special department.

Before proceeding further, I should like to say a word in connection with that group of waves which are placed between the ultra-violet and the X rays. A reference to Russell's work has shown us that many of the substances hitherto considered inert are giving off active radiations, and it is impossible to think of these without asking one's self, "How do any of our drugs or agencies act in medicine?" No doubt some of them may do so mechanically or chemically, but is it not possible that many of them are giving off stimuli which excite the terminal nerves? After all, everything we speak of and appreciate by means of our senses is some movement.

I should like, in this connection, to hear the views of our former President, Dr. Stoker, whose work in the application of oxygen has more than once been brought before the Association. Of this we may be sure, that we shall never place medical science on a sure foundation, nor can we ever hope to make it an exact science, until we know something more in this direction. A few years ago light waves were not much associated in men's minds with electrical waves, but Clerk-Maxwell, Hertz, and others, have demonstrated the

connection in physical science. May we not hope that some day the same may be done with different forces or agents employed in medicine?

Coming now to those affections with which we are familiar in our own special department, my thoughts were first attracted to the study of lupus, tubercle, and other chronic conditions, possibly malignant disease. Encouraged by the success of different methods in the hands of others, notably in skin affections, and having had an opportunity of seeing the work done in the general hospital, the question of the selection of an agent was the first consideration. It was difficult to see how we could apply the X rays from the Crookes tube, seeing there is no means of reflecting or refracting them. I did, however, make many experiments on the superficial parts with considerable success. It was equally difficult when we tried to apply any of the radiating salts within the cavities, and the same may be said of Finsen's apparatus, although that has been considerably improved and simplified in the hands of Dr. Sequira. Arsonval's modification of Tesla's high frequency apparatus promises much, and I have by no means exhausted my experiments in this direction. One great difficulty in its present form is the liability to sparking which occurs from the electrodes when placed in the cavities, and which cannot be borne by the sensitive mucous membranes. Many modifications of Oudin's resonator were made, and I think it yet possible that something may be done to modify these results. In consequence of careful study, however, I was induced to fall back on other means, of which I shall speak later. The subject was approached, however, in the following way: The first thing which attracted my attention to the possibilities of therapeutic action was a dermatitis of my own hand, which occurred early in 1896. For reasons which need not be mentioned here, I was studying the effects of the rays on the fluorescent screen, and had placed a Bunsen burner below the tube. I was trying to verify the statements of J. J. Thomson as to the fact that there were different kinds of X rays. At the end of a few nights' experiments my hand became affected to such an extent that it was impossible to proceed with the experiments. It is to be noted here that the conditions in the tube were just such as we now recognise to be the best possible for producing such a dermatitis. The tube was soft, blue in colour, with a bluish-white stream passing down the centre of it. The hand was placed within a few inches of the bulb. There was no protection to the skin, and the experiments were repeated very frequently. I may here say that one beneficial result of these experiments was that it enabled me to avoid reaction in working generally with the

X rays ever since. I next went to the other extreme, and worked for a long period with hard tubes; and, thanks to Lord Blytheswood, who presented me with an excellent device of his own for exhausting Crookes tubes, I was able to make many experiments during the next two years in every possible condition of vacuum. My first observations were recorded in the *Lancet* at the date mentioned five years ago. There I stated that, at the time the dermatitis occurred, there were at least three possible agencies at work: Firstly, X rays; secondly, heat waves; and, thirdly, electric discharges round the tube. I found, as the result of experiment, that the heat waves could practically be discarded, and I am not now going to enter into controversy as to whether the X rays produce the dermatitis or not. For our work, however, we could not risk them in the region of the larynx. It seemed, therefore, that the electric discharges were worth while considering, and to these I directed special attention. The next fact which arrested my attention was one which occurred over two years ago, when I tried the effect of the electric discharges themselves upon a patient suffering from rodent ulcer in the nose and face. The patient had been operated upon three times before. I placed him in front of the X ray tube, but arranged the current from the coil in such a way that one could not detect any X rays, by means of the fluorescent screen; the X rays were, in fact, practically absent. The patient was treated daily for three weeks, and at the end of that time the rodent ulcer had healed. He was afterwards watched for a period, and instructed to return should there be a reoccurrence, but the part remained in a satisfactory condition. While the patient was being treated, if one drew the finger along his skin, a brush discharge could be felt distinctly; and, in fact, the patient was being charged much the same as if he had been placed in front of the old and well-known static machine. Being in possession of a large Wimshurst, I began experimenting; but, unfortunately, owing to a break-down in the apparatus, my work was suspended for some months. It was quite clear to me, however, that the subject was one well worth investigation, because it suggested to a certain extent—but only to a certain extent—the lines upon which Arsonval had been working so successfully. It differed in the following advantages: A current of greater potential, if less frequency; less liability to sparking; the choice of the negative or positive poles, the former being less painful; and, lastly, absolute control of the strength of these currents. If you follow me so far, you will see that one can obtain these high potential currents, first, from the electric field round the tube; secondly, from a modification of Tesla's original apparatus, which I have made

and tried ; and, lastly, from the static machine. Moreover, by the modification of introducing a spark-gap (well described by Monell in 1893), greater force could be added at will, and by introducing a piece of spiral copper wire into the circuit with condensers it could be made to approximate to Arsonval's modification of Tesla. These methods I shall demonstrate by means of magic lantern slides.

Turning, then, to the method of applying this force, let me say that I have followed the old and well-established rules of workers with static machines. The patient is seated on a chair placed on a table insulated by glass legs. Contact is made with the table by means of a metal conductor from the negative pole, and a wire from the positive terminal is led to the electrode. For our work I prefer a polished metal ball, and this may be placed at a distance from the patient, or introduced into a cavity. Some of these points or electrodes I have brought with me.

Let me for a moment show you on the screen a photograph of the ordinary electric discharge, or, in other words, the sparks between the terminals of the Wimshurst. This is familiar to you all. Next, let me show you one representing the bluish lines of force passing from the positive electrode, which are quite visible to the eye, or what takes place in air under the conditions I have above described. This bluish, brush-like discharge suggests a force of great potential dashing towards the patient. It is accompanied by a hissing sound, and if there be no sparking it is painless, although the patient feels stimulated as if a cool breeze were playing upon the part. The adjustments of the electrode must be made carefully to prevent sparking, but the speed of the machine easily modifies the force. The sittings last from ten to twenty minutes, and are given daily. The mouth or nose can be kept open by glass tubes.

We might pause for a moment to consider what affects the patient. The electric currents themselves are invisible, but still the patient is also receiving a tremendous number of stimuli from this bluish stream, the result of contact with the air. We have it on the authority of Tesla that, with his apparatus at least, when a person is so electrified, he is bombarded with millions of particles of air, which, as they give up their charges of electricity, are setting up innumerable oscillations in the patient's tissues. In the hope of distinguishing between these two agents, I am showing you a parabolic reflector placed behind a series of brass balls, which can be stimulated to give off electric vibrations much the same way as in a wireless telegraphic transmitter. This mirror will send out no brush discharge, but electric oscillations ; and should it prove

effectual, it will help us to differentiate between the therapeutic actions of electric oscillations and other discharges, and it will also have this further advantage that, if successful, it could be made large enough to stimulate a number of patients at the same time.

Clinically, it may be of some interest to record the general facts to be observed during treatment. The patient experiences nothing beyond an exhilarating general effect; no pain is felt unless a spark should pass to the patient, and even then it is not serious. The dust of the room rapidly collects on the surface of the patient's body, being attracted by the electric currents. Healing as a rule progresses steadily; granulations form in the parts until they have reached the proper level, after which epithelial structures cover in the parts. It is further interesting to note that discharges rapidly dry, and that the effect is not limited to the part in front of the electrode, because in some instances I have found that while one side of the face which alone had been stimulated was healing, other diseased structures on the other side at a distance took on the same action. There is no scar left. I have never seen the slightest attempt at reaction or dermatitis, which often accompanies X-rays, Finsen's, and in one case with me at least, high frequency currents. I have had the best results where no surgical operation had previously been performed; in fact, in any case where a scar has resulted or loss of tissue it has been where other measures had at first been tried. No medicine in the test cases was administered, and no other kind of treatment was applied to the patient.

I have thought of trying these high potential currents in the deeper tissues: in other words, it is a fair question to ask, Would not the tissues of the larynx or the lungs be affected indirectly? So far my best results have been got by applying the current in the way I have indicated, but I am at present engaged in a series of experiments to test the internal as well as the external benefits. As yet I have not been able to come to a definite conclusion in the matter.

RESULTS.

Lupus.—It is difficult to convey to you a fair and accurate idea of the changes which take place in the tissues of the nasal, pharyngeal, and other cavities under the influence of these currents, for the simple reason that they can only be seen by examination of the patients. I can show you some photographs, however, of the changes which take place in the skin of the face, because this was involved in many of the cases, the disease having spread by continuity of surface.

In this first photograph, that of a girl aged seven who had suffered for over three years from the disease, and who had been treated by means of the cautery and other methods, you will see the effect on the face, although the affection had also involved the nostrils as far back as the naso-pharynx. As recently as July the parts had been curetted for the third time under an anæsthetic, and in August seemed as unsatisfactory as ever. There was great destruction of tissue and abundant discharge of a muco-purulent character, and on each side of the nostrils there was a diseased area of about one and a half inches, while the upper lip was seriously involved. Within three weeks the parts affected externally were quite dry, and the patient could go about without a dressing of the surface. In two months time the inside of the nostril had also healed, and the only part of the face in which there is a scar left is where destruction of tissue had taken place as a result of surgical procedure.

The second photograph which I show you is one of an interesting case of lupus occurring in a young lady, otherwise thoroughly healthy, aged twenty-eight years. She had at different times during the past ten years been under my care for lupus of the pharynx and naso-pharynx, and these were slowly, but successfully enough, treated at each attack by the ordinary methods. About a year ago the disease broke out in the face with great rapidity, and in a short time showed a bilateral, butterfly-shaped, diseased area, extending from the eyes downwards, and outwards on the cheeks for nearly an inch and a half on each side of the middle line. The skin of the nose, the upper lip, and the inside of both nostrils were seriously involved. The attack was accompanied by all the usual ulceration and offensive discharges. She was not under my care for this lesion, but her medical attendant, knowing the results of the X rays, sent her to me. We were not then so confident of the results as now, although, at her own suggestion, we began treatment with the X rays. Owing to the rapid destruction of the side of the nostril, it was thought advisable by her physician to stop treatment, and to apply more direct and radical measures, in the hope that the nose might be saved. The patient was put under chloroform, the worst parts gouged out, the rest of the diseased structure curetted, and the cautery was applied with no sparing hand. The patient was kept in bed for some time, and, beyond a pretty severe hæmorrhage or two, she made a good recovery. The disease, however, was not arrested. She was after two months put to bed, injections of tuberculin were given, until the great rise of temperature and other changes became so serious that those in

charge of the case were afraid that the lungs would go wrong. This method of treatment also failed. Learning of Finsen's method, after consultation with her medical adviser she was sent to London. Here I should like to record the statement that the only reason why she was not subjected to the light treatment in this city was simply her own objections; it was offered to her, and refused by her and her friends. She decided on her return to try the X rays or other treatment, and in three and a half months, first using the coil and tube in the way indicated, and afterwards and more effectually the static machine, the parts were quite healed, and this remark applies to the inside of the nose as well as to the face. Four months have elapsed since, and there is no recurrence of the disease. The patient is now perfectly healthy, and over the greater parts of the surface the renewed skin cannot be distinguished from the normal surrounding parts.

The third photograph which I will show you is that of a still more serious case. A lady, aged fifty-eight, was sent to me on account of lupus of the mouth, nose, and face. You will see from the photograph that the whole face, from the eyes out to the ears, and the nose, mouth, and chin are one mass of diseased structure, dark-red in colour and covered with crusts. There is great induration, and the lower third of the nose has been destroyed. The disease extends into both nasal cavities and the inside of the lips, which are swollen to three times their natural size; the gums, floor of the mouth, sides of the tongue, and the anterior third of the palate are all affected. The patient was very ill, unable to swallow with comfort, and she had suffered for twenty-one years. With two months' treatment the nostrils inside have two-thirds healed; the disease in the mouth is vastly improved; half of the diseased structure has gone; she eats and swallows with perfect comfort; and you will notice the changes which are to be seen in some of the other photographs which I now show you of the face. You will see areas of the disease being encroached upon by healthy skin, the swelling in the face has gone down, the cheeks are becoming pale in colour, the crusts and discharges are disappearing, and the patient has steadily improved.

The fourth photograph which I show you is that of a case which, I think, should be termed "lupoid" disease of the nose, because it occurred in a child of six who had suffered for three years, and who shows evidence of hereditary specific mischief. The septum in this case has gone, and the whole inside of the nose is involved. He had thrice been operated upon, and had been given internal remedies as well; but on my return from holiday last July, three weeks after the

last surgical operation, the case seemed as bad as ever. The discharges from the nostrils were very offensive, and there was every evidence of the disease spreading rapidly. Within three weeks of the new treatment the discharge began to dry up, and in two months the parts had practically healed. He is now under treatment for the specific affection elsewhere, and the condition of improvement is being maintained. In this particular case I must record the fact that he is having iodide of potash internally since my treatment ceased. In the other cases above mentioned no other treatment whatever was given.

I could quote other cases of lupus, but the results will probably be brought before some other meeting of the Association, and sufficient has been said to show that electric currents of high potential seem to affect such diseased structures beneficially.

Tubercle.—I prefer meantime not to give any definite statements with regard to the action of this agent in the ordinary tuberculous affections of the upper respiratory tract which are of interest to us. The commoner seat of the infection, the region of the larynx, presented great difficulty at first, owing to a tendency to spark when electrodes were introduced into the cavities. This difficulty, to a great extent, has been overcome, and it was the one which I have already said offered the greatest problem in trying Arsonval's apparatus. I have cases under treatment at present, and can say in a case of tuberculous ulceration of the epiglottis the results were quite satisfactory. A second case of a rapidly increasing tumour of the nasal septum on the right side, which caused great stenosis and clinically suggested a sarcoma, and was diagnosed microscopically by the pathologists as tuberculous, has been vastly improved. The tumour, which was about 1 inch in diameter and pressed against the outside wall of the right nostril, is now practically on a level with the septum, and a very small area requires to be covered in. The stenosis is altogether removed, and the patient is free of pain and discomfort.

Epithelioma—Rodent Ulcer.—I have already indicated in my paper that this affection seems to yield to the same method of treatment, and one case referred to above has remained well for two years after other methods of treatment had failed. On the screen I now show a photograph of another case on the cheek. This patient, aged fifty-five years, dates his illness back to an attack of erysipelas about twelve years ago, and five years ago the condition was diagnosed as rodent ulcer; he had been treated in various ways previously. You will notice the difference from the time I first saw him, three weeks ago, and now. The wound is

granulating, a bridge of skin has formed across the centre, and comparatively little now remains to be covered in.

Coming to the most serious forms of epithelioma, I must speak with the utmost reserve, being fully impressed with the responsibility of saying anything which will mislead you about the results. My whole work is in a purely experimental state, and would not be referred to were it not that a number of surgeons and patients know that the experiments have been tried in this direction. Perhaps, although I should prefer it otherwise, it is as well, therefore, that a clear statement should be made. From what I have seen, these currents (and I might say the same of the X rays) seem to have some effect in stimulating the normal healing forces. I need hardly point out to you that in the present state of knowledge no surgeon would feel justified in setting aside operative procedure where it is feasible, and consequently only the most advanced and inoperable cases have been placed at my disposal for observation and experiment. I have had one good result, and now have two advanced cases under observation—one where the disease is in the region of the fauces and the other in the œsophagus and larynx. The disease in the former, after two months' treatment, is apparently arrested. The difficulty of opening the mouth, pain darting to the ears, dysphagia, and similar symptoms, have all improved, and the patient's weight has been maintained for three months; the growth itself is smaller. In the other similar changes are taking place. I will not say more than that the disease seems to be arrested, but the cases which I have under observation are showing results sufficient to justify the continuation of the treatment. Both instances are inoperable in the opinion of competent surgeons.

In placing the above-mentioned experiments before you I have not ventured to draw a comparison between the methods suggested and others. In all there are advantages and disadvantages. That certain results have been obtained there can be no doubt, but the question arises, Will they be permanent? At present sufficient time has not elapsed to speak definitely, although even now a longer time has passed in some of the cases during which the patients have remained well than after any other method of treatment tried in them.

Another important question naturally suggests itself, and I have been more than once asked, "How do these high potential currents act?" Here again we have to answer that we do not know. It may be, although it is hard to see how it can possibly be, that there is a mechanical stimulation, and one can imagine that there

may possibly be chemical changes, although this does not look so likely in view of what I have said—that parts often take on healing actions which are at a distance from that directly stimulated. We have it on the authority of Tesla, as we have said, that the whole body of the patient at the time of stimulation is having an infinite number of oscillations set up within it. That the action may be germicidal, of course, has been often suggested, and the same view has been taken of the action of X rays. I need hardly point out to you that this statement has not been proved, and no one has contributed more to our knowledge in this department than our distinguished colleague, Dr. R. Norris Wolfenden. His views, as the result of most careful research, point in the direction of greater activity rather than destruction as a result of stimulation with the X rays. I am aware that it has been suggested that while at first the germs are increased rapidly, after a number of generations, owing to their rapid reproduction, they lose their virulence. To all these speculative questions there can be but one answer meantime, and that is that we do not quite know. What is not at all unlikely, however, is that in some way or other the natural forces at work in the tissues to cast out disease are stimulated to greater activity.

No one can approach this subject with much greater doubt than I did. My sincere desire is to place a plain statement of facts before you such as they have presented themselves to me up till this time, and in the hope that perhaps others may see their way to try the same methods. That many of these so-called physical forces can stimulate, and have stimulated, the normal tissues to cast out diseases no one can doubt, even if we are not yet sure of permanent result. Last night I had the privilege of hearing Mr. Herbert Jackson give his Presidential Address to the Röntgen Society, and he pointed out that if several agents produced like results in certain diseases, there must be a common agency at work. In our first investigations, therefore, it is of importance that we should find all these forces, try them, and afterwards compare results. It is because I have found by a process of selection that high potential currents may be useful in the treatment of affections of the upper respiratory tract that I venture to offer this slight contribution to the general question.

In connection with this paper I desire to acknowledge with my sincerest thanks the able and valuable assistance rendered me in carrying out experimental details by Mr. Alexander Chaplin and Mr. Walter Jamieson, A.M.I.E.

**THE LARYNX—A SITE OF INFECTION IN CERTAIN DISEASES
OF THE LYMPHATIC GLANDS KNOWN AS LYMPHADENOMA,
LYMPHOSARCOMA, TUBERCULOUS LYMPHADENITIS, ETC. ;
AND A NOTE ON PRIMARY TUBERCULOSIS OF THE ORGAN.**

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ADENIA, lymphadenia, lymphadenoma, lymphadenosis, lymphogenic diathesis, lymphoma, lymphomatosis, lymphosarcoma, malignant lymphoma, pseudo-leukæmia — these are some of the terms used in the literature dealing with the group of cases presenting in greater or less degree the clinical features described in 1832 by the celebrated morbid anatomist of Guy's Hospital. The nomenclature is in itself evidence of confusion and uncertainty. This is doubtlessly in great measure to be attributed to an ever increasing knowledge of the histo-pathology, and at the same time a corresponding lack of precise knowledge of the etiology or pathogenesis of the morbid changes.

Since the day when the clinical features were grouped under Hodgkin's name, we have gone out in divers directions to elucidate the disease, and many of us now appear to be coming back to where Hodgkin started from. Some of the original cases described by Hodgkin, judging by the descriptions given in his paper, were probably tuberculous in nature. We certainly know that a large number of cases that would formerly have been placed under a general classification of lymphadenoma are partly, if not entirely, due to the tubercle bacillus.

But by way of illustrating how easily confusion and uncertainty may arise, I would mention that it is within my experience, and perhaps, also, within the experience of others, to have examined a series of glands removed from the same body, and, under the microscope, to have found in one gland what is regarded as the typical histological structure of lymphadenoma, in another that of tubercle, and in a third that of lymphosarcoma, the sections being sufficiently typical for examination tests, or even for class purposes. One might even go further and claim to have observed all these structures in one and the same gland. And so, although progress has been made in the morbid histology of the disease, this progress has rather added to the nomenclature than to a knowledge of the etiology. In the present paper I propose to use the term "Hodgkin's disease," not only out of regard for a great morbid anatomist, but also on account of it being less likely, in the present

uncertainty about the disease or diseases it may eventually cover, to lead to confusion ; the term will therefore be used in its generally accepted, free, comprehensive, and non-committal sense.

It has long been surmised that Hodgkin's disease is due to an infection ; and, as the result of experimental investigations, various organisms have been found in the glands. Michell Clarke,* in opening the discussion on "Lymphadenoma" at the Cheltenham meeting of the British Medical Association, fully reviewed our present knowledge of the disease, and he has appended to his paper an extensive bibliography. He considers that so far, however, it cannot be said that any specific organism has yet been found, and it may well be that some of the organisms described occurred as a secondary infection.

In discussing the resemblance of lymphadenoma to the infective diseases, he pointed out that "the glands most frequently involved are those which are most readily infected through the skin or mucous membranes. The great preponderance of earliest affection of the cervical glands, and perhaps, although there is a difference of opinion on this point, of the submaxillary lymph glands which stand in relation to the tonsil, and the not infrequent affection of the tonsils themselves in this disease (lymphadenoma), suggest the mucous membrane of the mouth and pharynx, and possibly the tonsils especially, as the common point of entrance of the infective agent."

The tonsils, as we know, have been frequently found secondarily affected in persons the subjects of pulmonary tuberculosis. Out of thirty-four consecutive post-mortem examinations of pulmonary tuberculosis, Hugh Walsham found the tonsils to be tuberculous in twenty ; and, without my entering for the moment into a consideration of the analogy between tuberculosis and Hodgkin's disease, mention may be made of the enlargement of the glands in the neck as the possible result of infection through the tonsils. Although there are grounds for presuming that cases of Hodgkin's disease will eventually be grouped amongst the infective diseases, we have no exact knowledge at present of the infective agent that excites the growth, nor of its mode of entry.

I now pass to the main subject of this paper : *ulceration of the larynx as a point of entrance of the infective agent*. It may at first sound a far cry from the larynx to the "hard-bake" spleen, and still further to the inguinal glands, but it is not so distant when we bear in mind that, so far as it is possible to ascertain, Hodgkin's disease has commenced in the glands of the neck in at least 50 per cent.

* *British Medical Journal*, September 14, 1901, p. 701.

of the cases recorded. The following clinical observation I think is of interest: A young woman, twenty-nine years of age, consulted me with reference to glandular enlargement, palpable, but not obvious, on the right side of the neck. There was no history of loss of voice, no huskiness, nor was any mention made of symptoms referable to the larynx, although a vague recollection of a sore throat was called to mind. From observations previously made in the dead-house, and which I shall presently narrate, I was led to examine the larynx.

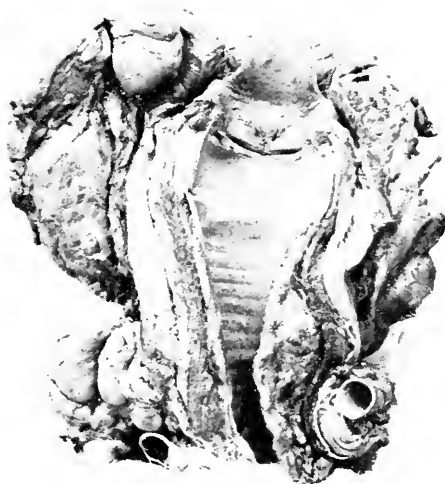
At the first glance there was no marked departure from the normal to be noted, excepting a want of symmetry in the arytenoid regions. On the right side the contour of the cartilages of Santorini and Wrisberg was lost in some localized thickening and œdema. On closer observation one could obtain a glimpse of what appeared to be minute points of granulation tissue below this œdema. The examination of the thorax was negative, and the glands in the right axilla were not palpable, nor were any on the left side of the neck, or in the left axilla. The temperature was raised to 99.4° F. At a subsequent visit the œdema over the arytenoid had passed off, and traces of a lesion in the posterior third and at about the level of the vocal cord could be made out. By this time the glands previously felt in the neck were obvious, and in the right axilla they had also become palpable. My opportunities for further observing this case for the present have ceased.

The mouth, the tonsils, the pharynx and the naso-pharynx, have all been suggested as possible sites of infection in Hodgkin's disease, but I have met with no record of any lesion having been demonstrated in these regions to support the suggestion; in fact, the suggestion at present is little else than hypothesis, or, at the best, an argument by analogy. The larynx, so far as I know from a search through the literature, has escaped notice, and in drawing attention to it, and producing direct evidence of ulceration of this organ in Hodgkin's disease, I do so in the belief that in the larynx we have an important clue to the solution of the theory of infection and to the mode of entry of the infective agent in a very important percentage of the cases.

It is now more than three years since I first observed ulceration in a larynx removed from a body presenting the lesions characteristic of Hodgkin's disease; the original larynx is figured in the accompanying plate. Since then I have met with other instances in the dead-house, and I have by me the material removed from these subjects; the gross morbid changes observed in three I will

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PLATE I.



Process reproduction of a photograph of the larynx from Case I., to show the ulcer in the posterior third of the left vocal cord and the enlargement of the adjacent lymphatic glands.

TO ILLUSTRATE DR. JOBSON HORNE'S PAPER. Vol. XVI., p. 684.

briefly state. The fourth case narrated is one of mediastinal sarcoma.

CASE I.—L. B——, a woman aged twenty-three. Autopsy July 18, 1898.

The lymphatic glands on both sides of the neck were considerably enlarged, both the deep as well as the superficial cervical glands, and more so on the left than on the right side. The tracheal and bronchial, and the anterior and posterior mediastinal glands were enlarged and obstructing the divisions of the bronchi leading to the upper parts of the lungs. Of the abdominal glands, the aortic were considerably enlarged, and to a lesser degree those situated along the greater curvature of the stomach and in the hilum of the liver; the mesenteric glands were not much enlarged. The axillary glands were not increased; the inguinal were enlarged.

The spleen contained several whitish nodules.

The liver was fatty, but was free from growths.

The lungs were cedematous; evidence of tuberculosis was looked for, but none was found.

The larynx presented an ulcer on the posterior third of the left vocal cord (*vide* plate I.), the edges of which were ragged but not thickened; at a corresponding spot on the right cord there appeared to be scar tissue.

CASE II.—E. E. M——, a girl aged fourteen. Autopsy June 8, 1899.

The body was emaciated, and there were some purpuric areas on the legs. The lymphatic glands above the clavicles were greatly enlarged, especially on the right side; the bronchial and tracheal glands were also considerably enlarged, and appeared to be commencing to caseate. In the gland at the bifurcation of the trachea was a calcareous focus. The glands on either side of the abdominal aorta, and those about the stomach and below the liver, were all enlarged, and there was a mass of glands on the upper surface and attached to the pancreas; the mesenteric glands were but little, if at all, enlarged; the axillary and inguinal were palpable, but not greatly enlarged.

The liver was fatty.

The spleen was small and firm, but presented no growths.

The lungs were slightly cedematous; there were no adhesions, no lymph, nor was there any evidence of tuberculosis.

The larynx was ulcerated over the posterior third of the right vocal cord, and there was a small ulcer on the right side of the free margin of the epiglottis.

CASE III.—G. D——, a man aged thirty-one. Autopsy May 16, 1900.

The body was fairly well nourished.

The lymphatic glands of the neck on both sides were greatly enlarged; so also were the axillary glands. The inguinal and other lymphatic glands were not affected.

The anterior mediastinum contained a mass of growth which completely surrounded the aortic arch; the vessel did not appear to be narrowed, but the superior vena cava was partially compressed but not obliterated; its walls were not invaded. The posterior mediastinal glands were enlarged.

The right lung was bound down by adhesions, and had been invaded from its root by the growth; the main right bronchus was almost occluded. Many small secondary growths were scattered throughout the right lung; these were in the lung substance, and independent of the lymphatic structures. The left lung presented near its apex a small calcareous nodule, and at its root a large caseo-calcareous bronchial gland (resembling old tubercle); the left lung was free from growths.

The liver and spleen showed no naked-eye evidence of lymphadenomatous infiltration, and were free from new growths. There was some adhesive perihepatitis.

Larynx: over the posterior third of the left vocal cord there was a deep ulcer (*vide* plate II.), and a shallower one at a corresponding spot in the right cord.

CASE IV.—T. G——, a man aged forty-nine. Autopsy May 24, 1900.

The mediastinum contained a considerable mass of new growth, presenting the macroscopic appearances of a lymphosarcoma. The main bronchus on the right side, although not invaded, was decidedly compressed, but not occluded by the growth; the œsophagus had been impinged upon to an extent of 4 inches, and for about 2 inches had been seriously narrowed. The gland at the bifurcation of the trachea was greatly enlarged, and appeared to be the starting-point of the growth. The anterior and posterior glands in the mediastinum were involved. The other glands in the body were not obviously affected.

The right lung near its root contained a secondary deposit of the circumference of a penny piece. No macroscopic evidence of tubercle was met with in the lungs or in any other part of the body.

The liver and spleen were free from new growth.

PLATE II.



Process reproduction of a photograph of a microscopic section cut vertically through the posterior third of the left vocal cord of the larynx removed from Case III. The section includes the ventricular band, the ventricle and the vocal cord. An ulcer can be seen dipping below the level of the cord.

TO ILLUSTRATE DR. JOHNSON HORNE'S PAPER. Vol. XVI., p. 684.

The larynx on the outer side of the right arytaenoid region presented a circumscribed area of cedema about the size of a raisin. On the inner aspect of the right arytaenoid there was the puckered scar of an ulcer situated immediately below the cartilages of Santorini and Wrisberg.

The four cases—the more salient features in the morbid anatomy of which I have briefly stated—have at least two important points in common : firstly, the ulceration of the larynx, and secondly the stress of the disease—call it what you will—being upon the lymphatic structures.

In another article I propose to give in detail, and as completely as I can, the histo-pathology of the growths met with, and also the results of the animal experiments, and I shall endeavour to assess, as far as possible, the value that should be attached to negative results from inoculating animals with morbid material from such cases.

For the present let me mention that the microscopic examination of the glands has shown that in the first two of these four cases we have at least the histological structure which we are taught to regard as characteristic of the disease known as lymphadenoma, and in the third all three structures characteristic of lymphadenoma, lymphosarcoma, and tuberculous lymphadenitis.

The fourth case was found to be one of sarcoma ; that is to say, histological round-celled sarcoma was present both in the growth and in the secondary deposit in the lung. After all, “ sarcoma ” is but a mere term, and conveys no more precise information about the nature of the case than the term “ lymphadenoma ” would afford about that of the others. The presence of the ulcer in the larynx in this particular case raises the interesting question whether the growths were not the result of an infection, and whether sarcoma may not eventually have to be numbered together with the lesions met with in Hodgkin's disease with the infective granulomata. Into this point I shall enter more fully.

A few words about the situation and nature of the ulcers in the larynx. In all four cases the ulcers were situated on the posterior third of the vocal cord and on the glottic aspect of the arytaenoid region. The ulcer in certain circumstances may be above the level of the free edge of the cord, lying in a natural and shallow furrow, which, starting from the posterior end of the ventricular opening, takes a curved course upwards and backwards, and becomes lost between the summits of the cartilages of Santorini and Wrisberg. An ulcer, or the scar left by an ulcer, may be present on the free

margin of the epiglottis, as in the second case I have mentioned. It will be noted that the ulcer on the epiglottis in this case was on the same side of the larynx as the ulceration in the arytenoid region, and it is a question whether the former may not be secondary to the latter, and not taking so important a part in infecting the glands. The edges of the ulcers I have so far observed have been either thin and ragged or else inverted and healing.

The ulceration of the larynx in all four cases I think must have preceded the enlargement of the glands, and in all probability led to an infection. I certainly do not consider that there is any ground for suggesting that the diseased glands occasioned the ulcers in the larynx.

Although it is my intention in the present paper to confine myself to the site of infection and to defer the consideration of the infective agent, I would like to add a note relative to primary tuberculosis of the larynx.

There is an increasing number of observers who hold that a much larger proportion of cases of lymphadenoma will be found to be tuberculous. A gland removed from the immediate neighbourhood of the ulcer on the right vocal cord in the third case showed on section the structure of lymphadenoma, and also contained giant cells and tubercle bacilli. An interesting point therefore arises as to whether ulceration of the larynx, in a case of general lymphadenoma of a tuberculous nature, is to be regarded as primary tuberculosis of the larynx. In this particular case there was some evidence of obsolete tubercle in the lung, but in another case which I had the opportunity of examining the glands were found to be tuberculous, the larynx presented ulceration of apparently some standing, but the lungs were free from tuberculosis.

The naked-eye appearance of the ulcers in Case I. and Case II. were certainly not suggestive of tuberculous ulceration; the edges, as I have already said, were thin or healing; there was no heaping up and thickening of the adjacent structure. It is conceivable that an ulcer may occur in the larynx, the infecting agent pass through to the glands, the ulcer eventually heal, and in the process of cicatrization all evidence of the nature of the infection become obliterated. Such a theory is comparable with the enlargement of glands and the healing of the primary sore in syphilis, and is in a measure supported by the presence of the puckered scars, one of which I examined under the microscope, and found to be a healed ulcer. The ulceration in the larynx is not always so obvious as in the accompanying plate; it may be so placed as to easily escape

clinical observation, but although "'tis not so deep as a well nor so wide as a church-door," in the cases I have examined, I think, it has been enough and that it has served.

To Dr. Andrewes, the Director of the Pathological Department at St. Bartholomew's Hospital, I am indebted for his kindness in placing at my disposal some of the morbid material upon which my observations have been based. I am also indebted to the Scientific Grants Committee of the British Medical Association, under whose auspices the research is being conducted.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

Annual General Meeting, Friday, November 8, 1901.

MR. MAYO COLLIER, F.R.C.S., *President, in the Chair.*

THE following officers were elected: *President*: Dr. John Macintyre (Glasgow). *Vice-Presidents*: Dr. Greville Macdonald (London), Dr. Walton Browne (Belfast), Dr. Hillis (Dublin). *Council*—Mr. Mayo Collier (*ex-officio*); *Metropolitan*: Dr. Culver James, Dr. Kelson, Mr. Claud Woakes, Mr. Atwood Thorne; *Extra-Metropolitan*: Dr. Scatliff (Brighton), Dr. Robert Woods (Dublin). *Hon. Treasurer*: Mr. Lennox Browne. *Hon. Secretaries*: Mr. Chichele Nourse, Dr. P. H. Abercrombie.

MR. MAYO COLLIER, the retiring President, introduced the newly-elected President, Dr. JOHN MACINTYRE, of Glasgow, who thereupon took the chair.

MR. LENNOX BROWNE showed the *Nernst Electric lamp*, but was unable to demonstrate it as the voltage of the supply to the rooms of the Society was too low. The following is the description of the lamp:

The Nernst light differs from the ordinary Ediswan light in that it consists of a filament, which is a short straight rod made of refractory earths similar to the material employed in the Welsbach mantle. It is a non-conductor at ordinary temperature, but becomes a conductor when heated. This heating is effected automatically by means of a porcelain spiral covered with platinum wire, and surrounding and in close proximity to the filament. When switching

on, this spiral becomes red hot, heating in its turn the filament sufficiently high to make it a conductor, the current which is passing through it heating it still more up to a brilliant white incandescence. This current, which incandesces the filament, is made to pass through the coils of a little electric magnet, attracting its armature and automatically cutting out the heating circuit, thus preventing any waste of current. The advantages are:

1. The filament consisting of materials the most refractory at present known, the initial temperature is, of necessity, a very high one, much higher, in fact, than that of an ordinary carbon filament lamp, whereby the efficiency is increased to a very considerable extent. As a matter of fact, a Nernst lamp takes on an average only about 1.5 watts per candle-power, as compared to 3.6 or 4 watts per candle-power in the ordinary incandescent lamp. The light is at the same time of a much superior quality, being, in fact, the nearest approach to sunlight yet obtained, not excepting the lime-light. It might here be remarked that the estimate of a light's power could not be determined solely by the photometer, for the whiteness of a Nernst was fully six times that of any arc lamp or other incandescent illuminant—albeit its candle-power might be very much less.

2. The shape of the filament, consisting of a short, straight rod giving light at a point without casting a shadow, would seem to lend itself particularly to the attention of surgeons occupied in throat, nose, and ear work.

3. It has been found that this filament does not give good results if enclosed in a vacuum, access of oxygen or air being essential to efficiency. This means, of course, that the filament can easily be replaced when burnt out.

The PRESIDENT, agreeing that the light had all the brilliancy claimed for it, considered it only fair to state that it possessed certain disadvantages: (1) It was more expensive; (2) its life at present was but short; (3) there was a certain delay, fifteen to thirty seconds, between the switching on of the current and the attaining of full illumination. He doubted not that in time all these disadvantages would be overcome.

Mr. LENNOX BROWNE said that although the first cost of a Nernst lamp was greater than that of an ordinary Ediswan, it was less than lamps of that class of equal candle-power, and the filament could always be replaced without the purchase of a new lamp, the filament in this respect corresponding to the mantle of a Welsbach burner.

MR. MAYO COLLIER showed the following three cases :

1. A man, aged fifty-five years, the subject of extensive *Malignant Disease of the Floor of the Mouth, Lower Jaw, Tongue, Pharynx, and Larynx.*

The affection was first noticed nine months previously. The glands in the neck were not much implicated. As the case was inoperable, Mr. Mayo Collier introduced the patient to the Association, in the hope that Dr. Macintyre could see his way to treat the patient by the new electrical methods so successfully put in practice by himself in Glasgow, and to be presently described by him.

2. *Abscess of the Maxillary Antrum associated with Facial Paralysis.*

This patient, a girl aged twenty-two years and a clerk, had up to this attack had good health. Some two months previously she had suffered from severe toothache in the upper jaw of the right side. The toothache was associated with swelling of the face and immobility of the parts. The offending tooth was removed, but the other symptoms, except the pain, were not abated.

On admission to hospital, a discharge was seen to emanate from the site of the tooth, and a probe could be passed into the antrum. The opening into the antrum was enlarged, and the cavity well drained and cleansed. The facial palsy improved, and the swelling quickly subsided.

3. *A Case illustrating the Relation between Asthma and Nasal Disease.*

The patient was a medical man, lately a Surgeon-Major in the Royal Army Medical Corps, and aged forty-five years. For nineteen years he had suffered intermittently and severely from attacks of asthma. He had resided in India, Egypt, and Bermuda, and had suffered from asthma in each of these places. Latterly the attacks were so frequent and prolonged that he had been quite incapacitated from duty, and, in fact, from the smallest exertion. He had received advice and treatment from the foremost physicians and specialists in India, Egypt, and the colonies without apparent relief.

On his return to England some four years ago he states that he consulted several hospital physicians and a leading throat specialist. These gentlemen percussed his chest, listened to his heart, examined his urine, but not one ever looked into his nose. He says he was soused with iodide of potassium and half poisoned with drugs, but

an inquiry into the condition of his upper respiratory tract was never made. At our first interview in February, 1899, I found the nasal fossæ full of polypi. These were removed. The asthma was immediately and markedly improved, and continued to be so for a period of thirteen months. Then an attack of pneumonia following influenza occurred, and the asthma returned, and was associated with a chronic bronchial catarrh, which maintained and kept up the asthma for a considerable period. This gentleman now exhibited himself as perfectly free from asthma for the last three months, greatly improved in health, and able to attend to the ordinary duties of life.

Mr. CHICHELE NOURSE showed a *Case in which a Laryngeal Growth disappeared after the Removal of Nasal Polypi*.

The patient, a carpenter, aged forty-three years, came on account of irritation of the throat, which he said had troubled him for some years. His pharynx was congested, and a small growth was seen with the mirror just under the edge and a little in front of the middle of the left vocal cord. Both cords were reddened in the posterior portion and their edges were uneven. The nose contained polypi in the hinder part of the middle meatus of both nostrils.

During the patient's attendance at hospital several polypi were removed from time to time. The little growth was observed at intervals, but was in no way interfered with. In March last the patient, being nearly free from symptoms, ceased to attend, and was not seen again until the other day, when he came to the hospital. On examination, no trace was observable of the laryngeal growth beyond slight redness at its former site. The case was shown not to illustrate anything new in the connection between diseases of the nose and those of the larynx, but as an interesting and objective example of success of treatment on these lines.

Dr. CULVER JAMES asked if the attack of pneumonia in Mr. Mayo Collier's case of asthma and nasal polypi might not be due to the operative treatment of the nasal condition.

Mr. MAYO COLLIER, in reply, said that he hardly thought so, the pneumonia occurring many months after surgical treatment and as a complication of influenza.

Statement of Mr. Mayo Collier's patient on his own case:

"The operations on my nose were four or five in number, and took place in the early part of 1899.

"Immediate benefit followed the operations, and asthma diminished in severity and frequency, until by the winter it was reduced

to an occasional nocturnal attack, very mild in character, and by the following January it had entirely disappeared.

"Previous to the operations asthma was very rarely absent, and for weeks I was so bad, day and night, that I could not leave my chair.

"During the summer and autumn of 1899 (and summer had hitherto been always my worst time) I played golf regularly, and could climb hills, bicycle, etc. What an improvement in a few months! And my weight at this time had increased by 14 pounds.

"In March, 1900, I was attacked by influenza, and this was complicated with pneumonia and pleurisy, which combined to reduce me to a wretched condition. Asthma came on again in May, and by June was continuous and most severe, with signs of heart failure. Injection of $\frac{1}{4}$ grain of morphia gave speedy relief, which lasted twenty-four hours, and this remedy was administered regularly for some time, with considerable benefit to my breathing. By great care I passed through the winter, and as summer advanced made rapid progress towards complete recovery. I have now had no asthma for over three months, and am in better general health than I have been since 1897, when the asthma was first so severe as to incapacitate me for duty. I had previous to 1897 suffered attacks only at long intervals, but was never incapacitated for any length of time, and between the attacks was in fairly good health, and able to bicycle fifty miles a day, and play cricket, etc., as well as anybody.

"I have now had no sort of treatment for some months, and am improving steadily, in spite of fogs and inclement weather.

"Previous to their discovery by Mr. Mayo Collier, I do not think that the existence of polypi had been suspected, but, indeed, my nasal fossæ had never been examined. I had tried every sort of treatment, and had sought advice from the best men in London and elsewhere. The polypi have not recurred since their removal in 1899, nor has any further treatment been directed to my nose since that date.

"Before the polypi were removed my nose was almost entirely blocked, at times so much so that I could not swallow, and breathing was, of course, entirely through the mouth."

MR. LENNOX BROWNE said that these two cases might well be considered together. Of course, he had not the least difficulty in agreeing with the conclusions of the exhibitors that the relief to the asthma in the one case, and the disappearance of the laryngeal growth in the other, was the direct result of the treatment of the

nasal disease. He was happy to have seen several cases which justified this agreement on stronger grounds than that of a mere pious opinion. The exhibition of these patients was exceedingly appropriate, because accepted conclusions on the question of nasal reflexes, established on the testimony of Daly, Häck of Freiburg, and other observers of the highest repute, had recently been pronounced to be grossly exaggerated and made the subject of ridicule. It was therefore to be hoped that all Fellows who had such cases would from time to time bring them here, and that the younger ones especially would not be deterred from recording their experience from the fear that either their intelligence or their honesty would be questioned.

The circumstance that none of the many physicians who had seen Mr. Collier's patient—not even a throat specialist—had ever inspected his nose forcibly illustrated that it was a *sine quâ non* for a laryngologist to be also a rhinologist and, it might be added, an otologist. Herein was justified the threefold object of this Association. He did not hesitate to say that a physician having under notice a case of asthma and failing to examine the nasal fossæ, was as neglectful as was a laryngologist who, in a case of laryngeal tuberculosis, omitted to examine the lungs—a charge often laid to their door, but certainly in modern days never justified.

Mr. Nourse's case was of especial interest, because it was confirmatory of the experience of the speaker and others that a free breath-way caused by removal of obstruction in the supra-laryngeal tract was a powerful safeguard against development of laryngeal irritation and laryngeal new formations. This experience was but a corollary of the conclusions of Hunter Mackenzie, who had recorded several cases of benign growths in the young which had atrophied and disappeared after tracheotomy.

Mr. BARK, although agreeing with the conclusions arrived at in the present cases, and with a similar experience in his own practice, thought it needful to bear in mind that only a proportion of cases of asthma with nasal disease was cured concurrently or consequently on nasal treatment.

Dr. P. H. ABERCROMBIE showed a *Case of Black Tongue*, from which Dr. Wyatt Wingrave had prepared microscopical slides, and on which he read a bacteriological report.

W. W. G——, aged thirty-two years, a crane engine-driver, attended on October 19 last, complaining of a black patch on the tongue, and a tickling sensation at the back part of the roof of his mouth, of about three weeks' duration.

On September 26 last, while at work, he felt the tickling sensa-

tion for the first time, and he continued to notice it daily until September 30, when he looked at his tongue in a mirror, and saw a black patch on the middle of the back part of the tongue.

The symptoms continuing in spite of treatment by gargles, etc., he applied at the hospital. Examination then showed an oval, raised blackish patch, measuring about 4 centimetres in length from before backwards, and about 2 centimetres in transverse diameter, on the dorsum of the tongue and in front of the foramen cæcum and circumvallate papillæ; the patch, which was symmetrically disposed, had a hairy appearance, and felt soft to the touch.

Beyond the tickling sensation already mentioned, which is chiefly noticed when swallowing saliva, and a sweetish taste in the mouth, which he had noticed for the last two months or so, there were no symptoms. There was no history of syphilis. He smoked about 3 ounces of tobacco a week, and drank moderately of malt liquors. For the last five or six years he had been exposed a good deal to escaping coal-gas. His general health was good, so was his family history. The uvula was elongated; his teeth were defective; he was a mouth-breather as a consequence of chronic hypertrophic rhinitis.

Dr. WYATT WINGRAVE reported as follows on a scraping which had been taken from the patch by means of a sharp spoon:

"Fragments were teased out in liquor potassæ and Farrant respectively, and unstained. In each the papillæ were broken up into brush-like bundles of long, thin, hair-like filaments. Each filament was composed of non-nucleated horny cells, rough and irregularly disposed, having the appearance of a ruffled feather. The filaments have a yellowish-brown appearance, due to pigment in the epithelial squames. The filaments appear dark-brown when in mass to the naked eye.

"Mingled with the broken and distorted papillæ were normal squames, fat granules, and a large variety of micro-organisms commonly occurring in the mouth. None of these were pigment-holding. Amongst them were the following: *Leptothrix* (plentiful), *Bacillus buccalis marinus*, *Bacterium termo*, yeasts (plentiful). These were confirmed by Mr. StGeorge Reid.

"*Note.*—These characters conform in very particular with six cases which I have examined. One was shown at this Society last year, but owing to pressure for time was not described. I fully agree with Schlech that the colour appearance is due to the pigment in the deformed papillæ, and not to any micro-organism, aspergillus or otherwise. The filaments are not true hairs, in that they are rough and contain no signs of medullary canals, but are

evidently due to cleaving of the papillæ, with keratinoid degeneration and pigmentation of the cells similar to cutaneous pigmentation. One striking feature of this disease is the regularly symmetrical disposition of the patch. In each case it occurred in the oroglossus, just anterior to the foramen cæcum, a part of the tongue developed from the buccal epiblast, and therefore morphologically epidermal.

"Black patches behind the row of circumvallate papillæ will be found to be due, most likely, to artificial causes, since the pharyngoglossal region has no papillæ whatever."

Dr. KELSON remarked on Dr. Abercrombie's case of black tongue. He had seen two such cases, in which simply cleansing the tongue well with a soft tooth-brush and plain water, or some such lotion as boric acid, daily, was followed by a quick disappearance of the disease. He was inclined to believe that simple dirt had a good deal to do with the cause of the condition.

Mr. LENNOX BROWNE made a communication on *Preliminary and After Treatment of Operations in the Mouth and Fauces*.

Dr. Wyatt Wingrave has lately contributed some interesting notes on a surgical rash following tonsillotomy, a subject which has always been of interest to me, but the consideration of which, by pure inadvertence, I appear to have overlooked, even in the most recent edition of my systematic work.

Dr. Wingrave reports thirty-four cases in the course of seven years, a number somewhat in excess of those in my own experience, but still very moderate in proportion to the thousands of operations on which he has been able to base his figures. Three of Dr. Wingrave's cases developed scarlet fever and one diphtheria. Excluding these, I may say that, as I have seen it, post-tonsillotomy rash has been characterized by an elevation of temperature comparable with that of scarlet fever, and with an eruption difficult to distinguish from the same, and in all the cases, on subsidence of the rash, there has been incomplete desquamation, such as might be better described by the word deflorescence. In one or two instances I have made a bacteriological examination, with the result of obtaining a culture of streptococcus of, so far as one can judge, a not very high degree of virulence.

The patients have all been isolated, so that it has not been possible to observe whether the rash was contagious, nor would one be justified in making such an experiment. I am strongly inclined to the opinion that this eruption is not truly scarlatinial, but presumably represents the intensity of a constitutional disturbance,

the result, it may be, of but slight septic infection of the wound, and that it is analogous to what is sometimes seen in cases of septic tonsillitis of high degree, and even in diphtheria, which have not been submitted to operation at all.* The majority of Dr. Wingrave's cases have varied somewhat in character, and he makes a suggestion as to their causation—namely, “that the case may be interpreted as one due to drug intolerance, since most of the cases were taking the usual mixture of sodium salicylate and potassium bromide.” This opinion has prompted me to offer these few words: In the first place, I do not quite recognise this “usual” practice of administering such a drug, nor do I see the necessity, as I am not aware of any indication that calls for it. I can never remember myself having prescribed it, and I would desire to suggest, at the risk of the imputation that I am claiming too much for the knife and ignoring constitutional states, that I do not see necessity for any internal administration of drugs, since neither the degree of inflammation nor the pain following tonsillotomy calls for an antipyretic or an analgesic. I would urge, therefore, that we treat these cases on the simple principles of modern surgery. My suggestions are to:

1. Clear out the *primæ viæ* by a saline aperient before operation.
2. Immediately before operation wash out the mouth, and, in the case of adenoids, the naso-pharyngeal vault, with a solution of chinisol, 1 in 1,000, or any equivalent antiseptic, according to the custom of the surgeon.
3. That having used aseptic instruments, we should, beyond another aperient the night following operation for the purpose of clearing out any blood that may be swallowed, leave the case to the *vis medicatrix nature*.
4. That the patient should be kept in bed, in, of course, good hygienic surroundings, and kept there for two or three days; complete rest of the body and of the voice are to be enjoined, and attempts at exercise or play forbidden. The food should be of such a substance and temperature as to give least exercise to the muscles of mastication and deglutition with least risk of secondary hæmorrhage. Particularly would I caution against the use of gargles, and if any mouth-wash be needed, it should be employed by a throat syringe, and should consist of a simple lotion of permanganate of potash or of chinisol. In the case of adenoids no nasal syringing should be allowed for four or five days.

These simple measures represent those I adopt and recommend for employment after removal of enlarged tonsils and adenoids, but

* “Diphtheria and its Associates,” second edition, 1897, p. 88.

they will hold good for almost any operation within the mouth and fauces. Their careful observance will, I think, greatly diminish the occurrence of skin eruptions and elevations of temperature which may point to septic infection, and will ensure against development of such as might be due to drug administration.

Dr. WYATT WINGRAVE expressed surprise that there were not more cases of rash following throat operations, considering the surroundings of the patients in the out-patient department, and more particularly their septic environment at their own homes. He said that most probably in the tonsils there was a source of protective alexines, which act as antitoxines by neutralizing the septic products of the micro-organisms.

Dr. HASLAM inquired if the rash was as frequent in cases operated on privately as in hospital.

Mr. LENNOX BROWNE did not think that proportionately there was much difference.

The PRESIDENT, understanding that the observations referred principally to operations on faucial tonsils, expressed the opinion that further investigations into the causes of these eruptions would be of interest.

The PRESIDENT then delivered his address.

Mr. LENNOX BROWNE, in moving a vote of thanks to the President for his address, mentioned that he had recently had the privilege of seeing in Glasgow six of the patients whose cases had been mentioned and their portraits shown on the screen, and he was able to say that the benefits derived from the treatment had been rather under-stated, and that the personal testimony of the patients was quite convincing. A particular point of interest was the reproduction in the lupus cases of a perfectly new skin with absence of scar tissue.

A very striking testimony to the value of the treatment in epithelioma of the fauces was that in such a condition loss of body weight is at once the most constant and probably the most convincing where diagnosis is doubtful. The patient in question had lost but half a pound in five months, whereas the average of emaciation in such cases was at least one pound a week.

Mr. MAYO COLLIER, the retiring President, seconded the proposition, alluding to the enormous labour that had been necessary to produce the magnificent address to which they had listened.

The proposition was carried with acclamation.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

Sixty-eighth Ordinary Meeting, November 1, 1901.

E. CRESSWELL BABER, M.B., *President, in the Chair.*

THE following report of the Morbid Growths' Committee was read :

Mr. Lake's specimen of laryngeal growth (Slide No. 20) ; see "Proceedings," March, 1900.* The section presented shows the structure of a glandular carcinoma.

Dr. Potter's case of growth in the region of the left tonsil (Slide No. 21) ; see "Proceedings," May, 1900.† The section submitted for examination shows the structure of a large round-celled sarcoma.

Mr. Mark Hovell's case of laryngeal growth (Slides Nos. 22, 23, and 24) ; see "Proceedings," May, 1901.‡ Fresh sections were cut by Dr. Jobson Horne from fragments removed in 1886 (Slides Nos. 22 and 23) and 1887 (Slide No. 24). The committee are of opinion that the histological structure of the specimens submitted to them is that of a benign papilloma.

Dr. Lambert Lack's case of laryngeal tumour (Slide No. 25) ; see "Proceedings," May, 1901.§ The committee consider the case to be one of mixed-cell sarcoma.

The following cases, specimens, and drawings were shown :

Case of Tertiary Syphilitic Laryngeal Stenosis treated by Laryngofissure without Tracheotomy (Re-exhibited). Shown by Mr. W. G. SPENCER.

The patient, a potter, was operated upon in March, 1899, for severe dyspnœa, not relieved by large doses of iodide of potassium and mercury.

Tough, irregular masses of inflammatory sclerosed tissue covered the ventricular bands and partly the vocal cords, which, however, moved fairly, and the cartilaginous framework was not involved. Much of the obstructing tissue was excised, including part of the right vocal cord. The patient has remained well and at work, breathing freely as well by night as by day. He has a hoarse, but thoroughly audible, voice. The inflammatory hypertrophy of the cord on one side now crosses the middle line, so as to meet the remaining portion of the excised cord. When exhibited

* JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOLOGY, vol. xv., p. 257.

† *Ibid.*, vol. xv., p. 390.

‡ *Ibid.*, vol. xvi., p. 291.

§ *Ibid.*, vol. xvi. p. 300.

soon after recovery the opinion of the meeting was strongly in favour of tracheotomy for such cases, and it was thought that this patient would soon require it.

The case shows that tracheotomy is not always best, but that in selected cases, especially where the cartilages are not involved, success is to be obtained by thyrotomy and excision.

The PRESIDENT congratulated Mr. Spencer on the successful result obtained, for there was no contraction of the wound in this case. The man had a very fair amount of voice, and was certainly more comfortable than he would have been if he had had tracheotomy performed.

Mr. P. DE SANTI said the case he had intended to show was of the same nature as Mr. Spencer's, but was one where tracheotomy had been performed, and the man's life was a burden to him. He was unable to do any work, and ready to have any operation whatever done so long as he could get rid of the inconvenience caused by the tracheotomy tube. If tracheotomy could have been avoided with a result equally as good as in Mr. Spencer's case, it would have been a great advantage to the patient.

Dr. HERBERT TILLEY said that the case referred to by Mr. de Santi had recently been operated on by the speaker at the Golden Square Hospital. The patient was very anxious to dispense with the tube, and laryngoscopic appearances seemed to indicate that if the left ventricular band and vocal cord were removed sufficient room would be provided for natural respiration. Thyrotomy was performed, but it was found that the cicatricial tissue extended below the larynx, and was particularly marked in the cricoid region. Hence, little good could be expected from removal of the left vocal cord and ventricular band.

Mr. W. G. SPENCER said the Germans had been trying grafting skin and turning the flap in as a means of checking the stenosis. Perhaps Dr. Tilley and other members would try this flap method. It had apparently been attended with some success, especially as regards getting rid of the tracheotomy tube.

An account of some cases in which this operation had been performed would be found in the *Centralblatt für Chirurgie*.

A Series of Specimens, Photographs, and Drawings, illustrating the Inflammatory Diseases of the Nasal Fosse and Accessory Cavities. Shown by Mr. F. WESTMACOTT.

One dry preparation showed a marked frontal projection of the anterior ethmoidal cell. Another a very large sphenoidal cavity coming far forwards and with very thin walls.

Several photographs and drawings taken from specimens in Zuckerkandl's Museum in Vienna presented some abnormalities in size of Highmore's cavity and of the ethmoidal and frontal sinuses, and also hypertrophies of mucous membrane in the nasal fossæ.

Two Molar Teeth showing Healthy Crowns, but Evidences of Caries in the Palatal Root; in each Case there existed an Empyema of the Corresponding Antrum. Shown by Dr. HERBERT TILLEY.

Dr. Tilley said that, although the crown of a tooth might appear healthy, it did not prove that the roots were not diseased and the cause of antral suppuration; hence, in a given case of antral suppuration the healthy aspect of the corresponding molar teeth should not at once lead to the inference that such an empyema was due to intranasal causes. If the patient experienced pain or discomfort in a tooth, which was coincident with an increase of the antral symptoms, such a tooth should be regarded with suspicion, no matter how healthy its crown might appear.

In one of the cases referred to, the abscess around the palatal root had free access to the antrum; in the second, a small abscess was situated in the recess at the root of the fangs.

Mr. PARKER asked Dr. Tilley whether there were any signs of pyorrhœa alveolaris, because otherwise he did not see how caries and suppuration could occur at the roots of the teeth, unless it was secondary to the sinus disease. The only conditions which could account for it would be either ordinary caries, proceeding from without inwards, or else pyorrhœa; and if there was no pyorrhœa in these cases, he should look upon the caries of the fangs as being secondary to, rather than the cause of, the sinus suppuration.

Mr. WAGGETT wished to say in contradistinction to the previous speaker that Tones, in his "Dental Surgery" (4th edit., p. 389), points out that one may meet with necrosis of the pulp without any external wound of the tooth whatever, an abscess forming from pus escaping through the apex of the fang.

Mr. NOURSE was of opinion that there was a small area of caries on the crown of one of the teeth.

Mr. WESTMACOTT said that this question of an apparently sound tooth with an abscess at the root had recently come under his consideration in the case of a doctor, who had when he first saw him antral suppuration on the right side. Apparently the set of teeth on that side was perfect. He noticed a symptom which to him was new, and he had not found any confirmation of it elsewhere. By transillumination with a strong lamp in the right side of the

mouth, the first molar was opaque, the other teeth being perfectly transparent. From the experience of a previous case, he came to the conclusion that the first molar was "dead," and advised its removal. An abscess was found at the apex of the palatine root leading into the antrum, and which was apparently the cause of the empyema. The same thing had within the past month been again brought to his notice in the case of a gentleman, who applied to him, with marked irritation at the front of the hard palate. Nothing could be found to account for this until, by means of transillumination, it was discovered that the right central incisor was opaque. On removing it, an abscess was found at the root of the tooth. After extraction all the symptoms disappeared.

Dr. STCLAIR THOMSON said he had just been reading an old book—Spencer Watson's book on "Diseases of the Nose"—and found the following on p. 161: "It may happen that the teeth are all apparently sound, and yet one of them may be the cause of the purulent collection within the antrum in consequence of the death of the fang, the symptoms of which are not by any means easily detected. The skilful dentist, however, is sometimes able to get information on this point by striking the crowns of the teeth in succession with a metallic rod until one of them is found to be more sensitive than the rest, and he then proceeds to test the condition of the pulp cavity of the suspected tooth. . . ." Dr. Thomson was sorry that they could not consult with dentists on this subject, because he had had cases in which the patients had insisted on having certain teeth extracted, which were found to have diseased fangs when there was nothing to be detected in the crown. He could not say whether in these cases the tooth was the cause, or whether it was secondarily infected. He believed he had read that the Röntgen rays were being used for the purpose of detecting diseased roots of teeth. He did not know if any member had come across this in the literature on the subject, or if anyone skilled in dentistry could tell him about the procedure.

Case of Laryngeal Syphilis with Fixation of Left Vocal Cord.
Shown by Dr. DONELAN.

The patient, a man, aged fifty-two, had contracted syphilis sixteen years previously. Three weeks ago there was a large foul ulcer occupying the left side of the larynx and involving the left arytenoid, vocal cord, ary-epiglottic ligament, and extending past the middle line on the posterior surface of the epiglottis with several unhealthy granulations. There was complete fixation of the left vocal cord. There had been remarkable improvement under anti-

syphilitic treatment so far, but in view of the unilateral character of the affection and the existing appearances, he desired the opinion of members as to whether there was not malignant disease as well.

Mr. SPENCER thought the antisymphilitic treatment might be continued for some time, as it looked likely to be successful.

Man, aged thirty-three, shown at the Meeting in April last with Chronic Laryngitis and an Ulcer on one Vocal Cord. Now seen to present marked Lupus Infiltration and Ulceration of the Epiglottis. Shown by Dr. STCLAIR THOMSON.*

This patient has now complained of hoarseness and a constant desire to clear his throat for about a year. When shown to the Society six months ago, the author raised the question as to the ulcer on one cord and the general thickening and congestion of both cords being due to tubercle, but he abandoned it in the absence of any confirmatory signs, and also because some purulent rhinitis was thought to be a sufficient explanation of the condition. Several members expressed their opinion that it was only a case of simple laryngitis, and some even thought that the man's hoarseness was to a great extent functional.

On June 1 last it was noticed that no ulcer was visible on the cords, which were simply thickened, catarrhal, with granulations along their attached border. For the first time the epiglottis was then noticed to be red, velvety, and infiltrated with slight vertical fissures (? commencing ulceration) on its laryngeal surface. He did not come under observation again until October 20, when the epiglottis presented the condition which may now be observed. It has lost much of its contour, being thickened, red, congested-looking, and with marked loss of substance and tubercular infiltration of the floor of the ulcers. There is no marked dysphagia; the voice remains hoarse and painful.

The PRESIDENT asked whether there were any symptoms or history of syphilis in this case, and also whether tubercle bacilli had been found.

Dr. JOBSON HORNE did not know why it should be regarded as a case of lupus. To him it seemed a fairly straightforward case of tuberculous disease.

Dr. STCLAIR THOMSON said, in reply to the President, that there was no distinct history of syphilis in this case. He had been put on 10 grains of iodide of potassium, but it had made him rather worse; this, of course, tended to confirm the suspicion of tuberculosis. There was a great clinical difference between tuberculosis

* JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, vol. xvi., p. 278.

and lupus in the larynx, a point which he had previously raised before the Society. He thought this distinction assumed its greatest importance in regard to the question of treatment, because if this was a case of lupus of the epiglottis, it was a form of disease most amenable to treatment; but if it was a tuberculous epiglottis, it was one of the most malignant of laryngeal affections.

Case of (?) Congenital Fenestration of the Anterior Pillars of the Fauces. Shown by Mr. WAGGETT.

The case was a well-marked example, occurring in a woman, aged forty-three, of the condition of which several instances had been exhibited at meetings during the past year. History of ulceration was completely wanting, but the patient had scarlet fever at an early age.

Dr. CLIFFORD BEALE said that considerable interest was attached to this case, in association with cases previously shown to the Society, because the question was raised whether such fenestration could be due to scarlet fever. It struck him at the time that there was not very much evidence generally forthcoming to show that scarlet fever was followed by such fenestration. Since then he had looked up the literature of the subject, and seen what the authorities had to say in this matter. The result was that he found several recent editions of present text-books had quoted from one another, and that finally the quotations came from one source—a paper by Goodall, in 1894, recording a short series of cases where there was definite fenestration after scarlet fever. No one else appeared to have brought forward such cases. He had the personal evidence of physicians at the fever hospitals to the effect that it is almost outside their experience to meet with palatal fenestration after scarlet fever. One physician had told him that he had come across one case where perforation had followed, but otherwise he had never seen it. That is to say, although ulcers of the soft palate follow scarlatina—they are, indeed, fairly common—they do not usually end in fenestration, but in recovery.

Dr. DONELAN referred to the recent literature of this subject, particularly to the cases of Monro, of Glasgow, and Koenig, of Paris, as showing that perforations of this kind were liable to be due to so many varieties of infection that the question whether a given case was congenital or otherwise was attended by increasing difficulty. In Monro's case, which appeared in the October number of the *Glasgow Medical Journal*, the bacteriological evidence appeared to show clearly that the erosive action was due to the pneumococcus.

Dr. FITZGERALD POWELL thought that there was very little doubt that this was a case of perforation resulting from ulceration. The openings, it would be observed, were certainly surrounded by bands of white cicatricial tissue, which showed that there had been ulceration, whether scarlatinal or not in origin he could not say.

Some time ago he showed a case of malformatin of the fauces, which he thought was due to developmental causes, and which looked much more like it than the present case, but the general opinion was, on that occasion, that it was due to scarlatinal ulceration.

He thought Mr. Waggett had, on previous occasions, shown cases which confirmed this opinion.

Mr. WAGGETT, in answer, agreed with Dr. Powell in thinking that scarring was present, and that the condition was probably, in this case, due to ulceration.

A Series of Living Cultures of those Bacilli which simulate Bacillus Tuberculosis by their Staining Reaction. Shown by Mr. STGEORGE REID.

Each culture was supplemented by a microscopical drawing of the organisms. They included, besides Koch's *Bacillus tuberculosis*, the *Bacillus tuberculosis* of fish (*Dubard*), by inoculation, and the following organisms isolated by Moeller: *Bacillus tuberculosis* from the blind worm, a bacillus from manure, the Timothy grass bacillus, and grass bacillus I. and II.; five different bacilli isolated from butter by Maria Tobler; those isolated from butter by Rabinowitsch and Grassberger; Korn's bacilli Nos. I. and II., also from butter, and Marpmann's acid-fast bacillus from the urine.

Mr. STGEORGE REID explained that all the microscopical preparations from these cultures had stood a prolonged soaking in 15 per cent. acid solution, and in acid-alcohol without yielding up the carbol-fuchsin stain; but that the cultures themselves showed how extremely they differed in their manner of growth from that of Koch's bacillus. Under the microscope, while some organisms simulated exactly *Bacillus tuberculosis*, others showed a very distinct variation from that bacillus, when it was obtained from fairly recent cultures.

Case of Growth (probably Papilloma) on the Left Vocal Cord in a Man, aged thirty-two, a Porter by Occupation. Shown by Dr. FITZGERALD POWELL.

The patient stated that in February this year he began to suffer from hoarseness and difficulty in singing, which had gradually got

worse. There had been no pain or dyspnœa. On examination, an irregular sessile growth is seen arising from the anterior three-fourths of the left vocal cord. It is nearly white in colour, and shows slight papillary projections on the surface. The growth is most probably a papilloma, containing some fibrous tissue. It is interesting to note in these cases of benign neoplasms of the larynx arising from the cords, even when of considerable size, the slight amount of interference with the breathing in adults.

Dr. CLIFFORD BEALE asked whether a papilloma of such a very white colour was not very uncommon. He suggested that such an excellent case should be recorded by means of a coloured drawing.

Dr. LAW wished to point out that the late Dr. Whistler showed a case to the Society some years ago in which the growth was even much whiter than the present one.

The PRESIDENT remarked on the whiteness of the growth.

Case of Epithelioma of the Epiglottis in a Man, aged fifty-eight.
Shown by Dr. DUNDAS GRANT.

Mr. BUTLIN said he believed Dr. Grant did not so much raise the question of diagnosis as that of operative interference, and from that point of view he would not regard the case as a favourable one. He had never operated on a case in a similar condition to this, and he was doubtful as to which was the best way of exposing the growth. Seeing that the man had a gland on the right side and that the gland was movable, he thought it would be best to cut down on it and make an extensive incision on the right side, getting to the base of the tongue and epiglottis, and then to make a thorough examination. At Dr. Grant's request, he had put his finger down on to the back of the tongue as far as the epiglottis, which was very hard. The base of the tongue was also indurated, but not to the extent he had anticipated, taking into consideration the visible thickening. There seemed to be little infiltration. Those cases that one saw, not very uncommonly, of malignant disease in front of the epiglottis spreading along the base of the tongue and backwards into the epiglottis, he had never yet ventured to attack by operation, the disease was so deep-seated and extensive; but he had often thought that he would expose the growth from the outside when a suitable case came before him, although he doubted whether it would be successful. Here he would expose the growth from the side and remove the glands at the same time, if he were going to operate from the outside.

Dr. LAMBERT LACK agreed that the case was quite unsuitable for operation. Not only the larynx, but so much of the adjacent parts

of the anterior wall of the pharynx and tongue would have to be removed that it would be quite impossible to close the wound. In early cases of epithelioma spreading from the tongue to the epiglottis, it was sometimes possible to remove the disease without removing the larynx, and in these cases he had seen very good results.

Case of Nasal Stenosis occurring in a Man, aged forty-three, in which the Symptoms seemed to be chiefly Subjective. Shown by Dr. DUNDAS GRANT.

The PRESIDENT said it seemed to him that the patient had a good deal of objective inspiratory obstruction; in addition to the very irregular septum, the collapse of the alae on inspiration made it difficult for the man to inspire.

Dr. PEGLER noticed some constriction of the folds of the limen vestibuli, which might contribute to the general stenosis. He hoped Dr. Grant would show the case again after the objective conditions had been treated.

Dr. FITZGERALD POWELL thought the symptoms were chiefly objective; there was also some superficial ulceration about the anterior nares which rather suggested a specific taint, and he would suggest putting the man on antispetic treatment.

Case of (?) Tubercular Disease of the Epiglottis. Shown by Mr. H. M. RAMSAY.

The patient, a girl, aged nineteen, an envelope sorter, complains of cough and hoarseness. She states that she was quite well till eight months ago, when she noticed an alteration in her voice, and began to be troubled by a cough. On examination, she has extensive thickening and lumpiness of the epiglottis and ary-epiglottidean folds. It is difficult to see the cords, but they seem to be very little affected and to move freely. The patient has no pain. The chest is normal, and no tubercle bacilli have been found in the sputum. The case is shown with a view to diagnosis.

Dr. STCLAIR THOMSON thought this case was, clinically, a very typical example of lupus. There was the greatest difference between that and tuberculosis of the same extent in the larynx. If this girl had no mischief in her lungs, it was one of the most favourable cases for local treatment, and it was quite possible to make a cure of it. He had recently seen such a case, in which the disease, apparently quite as extensive as in this girl, was completely arrested by the use of the galvano-cautery in one of his colleague's hands. He mentioned this because he had heard in the Society many expressions of

opinion against the use of the galvano-cautery in the larynx. The case he referred to was one of extensive lupus, not only of the epiglottis, but also of the ary-epiglottic folds, and treatment with the cautery resulted in complete arrest.

Mr. BUTLIN said that with regard to the use of the galvano-cautery in the larynx, a well-marked case of lupus was once handed over to him. The patient was in the hospital. He applied the cautery very freely indeed, and in the end succeeded in getting the disease cured. But he was bound to admit that on one occasion the patient nearly died, and certainly would have died had he not instantly performed tracheotomy in the ward. Anybody who was going to apply the cautery in the larynx in the case of lupus, unaided, should be prepared for such a contingency.

Case of Laryngeal Swelling. Shown by Dr BOND.

The patient, a boy, aged fourteen, has had a peculiar voice since infancy. On the left side the cord is masked by a swelling, especially in front and low down, red in colour, slightly granular, and moving with phonation. Occasionally a small portion of base of cord can be seen. The boy is unable to obtain work because of his peculiar voice. Suggestions as to treatment of the condition were asked for.

Dr. LAW suggested as a possible, but very improbable, explanation of the condition, the impaction of a foreign body. He remembered when he was house-surgeon at Golden Square a patient coming to the hospital for four or five months presenting a very similar appearance in the larynx to this patient. He heard a year or two afterwards that a piece of rabbit bone was one day extracted, which had not been visible during the previous year's observation.

Abstracts.

DIPHTHERIA.

Ausset, E.—*Preventive Inoculation of Diphtheria Antitoxine.* "L'Echo Méd. du Nord," June 23, 1901.

In a family of three children, one child took diphtheria; a second child, of eight years, was at once sent to live in another place, but developed diphtheria; whilst the third child, a baby still being nursed by its mother—who attended the diphtheria patient—was injected with diphtheria antitoxine, and did not take diphtheria. Had no preventive injection been given, the baby would probably have taken diphtheria; certainly it was much more exposed to infection than the

older child. Diphtheria antitoxine, as prepared nowadays, is a perfectly safe drug to use. Some argue that if the other children in a family in which diphtheria has occurred are carefully watched, the very earliest signs of diphtheria will be detected, and antitoxine can be at once injected, with practically as good results as if a prophylactic injection had been given. This Ausset emphatically denies, and quotes a case in which, in spite of antitoxine having been given at the very onset of an attack of diphtheria, the disease spread to the pharyngeal tonsil, and the child only recovered after a serious illness.

Arthur J. Hutchison.

Biernacki.—*The Treatment of Severe Diphtheria.* “Edinburgh Med. Journ.,” November, 1901.

The primary feature of diphtheria is the local lesion. Generally speaking, the degree of toxæmia is proportionate to the extent and thickness of the membrane. No local application has any deterrent effect on the development of the membrane, and its removal is more and more discredited. The parts should be kept as clean as possible by syringing with boracic acid or saline solution. Syringing, in nasal and naso-pharyngeal cases, is more effective than spraying the parts, and if carefully carried out does not increase the number of attacks of otitis.

After a time the toxine, having entered the organism in sufficient quantity, produces its physiological effects, the most obvious of which is a relaxation of the bloodvessels, producing a *primary fall* in blood-pressure. It is probable that if at this stage sufficient antitoxine could always be introduced to neutralize the toxine, other treatment would be scarcely needed. In mixed infections the author has tried the injection of mixed antistreptococcus and antidiphtheria toxin, but without specially beneficial result. The introduction of antitoxine is followed by a rise of blood-pressure, which is sometimes very striking. Of drugs to raise blood-pressure during this stage, the best are strychnine and caffeine. The latter is supposed to have some special action in promoting diuresis—*i.e.*, its diuretic effect is not due, as is that of strychnine, entirely to the increased blood-pressure. Digitalis is dangerous, because its cumulative effect may last on into the third stage—*viz.*, the stage in which the most prominent feature is degeneration of the heart muscle, resulting in cardiac dilatation and a *secondary fall* in blood-pressure. The blood now tends to collect in the splanchnic region; the surface of the body is cold and blue; there is oliguria or anuria, and often persistent vomiting. The blood-pressure is already so low that to lower it still more, in order to relieve the labouring heart, is extremely dangerous; on the other hand, it is equally dangerous to attempt to raise it by increasing the pressure in the arteries. Hence the danger of digitalis, and hence the danger even of saline infusions. Alcohol is here the chief agent, and should not be given earlier. If there are successive critical attacks of syncope, ether and a hypodermic syringe should be kept by the bedside; the lower end of the bed may be raised about a foot.

For the apyrexia of this stage heat must be applied, and this is best done by means of hot blankets. In the treatment of oliguria or anuria, when other methods fail and the condition of the heart warrants it, saline infusion may be tried. Saline infusion may also be required in cases in which there is persistent vomiting and diarrhoea. Repeated

small injections should be given, so as to avoid the risk of a sudden rise of blood-pressure. As soon as it can be retained, water should be given by the rectum; then rectal feeding, and a few drops of water by the mouth, the quantity being gradually increased. But extreme caution is required in commencing to feed by the mouth in these very severe cases, lest the vomiting be brought on again.

In the fourth stage of a severe case—viz., that of peripheral paralysis—if there is difficulty of swallowing, nasal feeding is required, and in the early part of this stage “absolute rest should be the golden rule of treatment.” It is doubtful whether medicinal treatment has any effect, but strychnine and galvanism may be tried.

Arthur J. Hutchison.

Cary and Lyon.—“American Journal of the Medical Sciences,” September, 1901.

Pseudo-membranous inflammation of the visible mucous membranes and of the gastro-intestinal tract resulting from infection by the pneumococcus is reported. The report is accompanied by an interesting review of the few known cases of this character.

MOUTH, FAUCES, Etc.

Moure, E. J.—*Tonsillar and Peritonsillar Abscess*. “La Presse Méd.,” August 24, 1901.

That abscess occurs in the parenchyma of the tonsil itself is now generally admitted. The tonsil is red and bulging, but the pillars, uvula, etc., are not affected—i.e., when the case is seen early.

Peritonsillar abscesses may be divided into three main groups. Most common is the classical or antero-superior group (26 out of 46 cases); next is the posterior group (12 out of 46 cases); least common is the external group. The last group is by far the most serious. Abscesses of this class give rise early to swelling of the neck and of the glands of the neck, to fixation of the neck and of the jaw. Sometimes, having perforated the limiting aponeurosis, they spread into the tissues of the neck, giving rise to so-called lateral pharyngeal abscess. They may produce fatal hæmorrhage.

All peritonsillar abscesses ought to be opened early—within three or four days of their onset. At that time it is foolish to explore for pus with a knife, because (1) considerable, or even dangerous, hæmorrhage may be produced, and (2) the wound closes long before the abscess cavity has had time to heal up. It is much safer to use a cutting galvano-caustic point, which is aseptic, almost painless, and produces a wound that will remain open from eight to ten days. Tonsillar, antero-superior, and posterior abscesses are generally pretty easily opened (details are given in the paper); but to open an external abscess is often both difficult and dangerous. In these the galvanic knife is plunged through the whole thickness of the tonsil towards its upper third, then is drawn from behind forwards, and from within outwards to the bottom of the tonsillar fossa ($2\frac{1}{2}$ to 3 centimetres). If this has not opened the abscess, the pus may be sought for with a cannula. Even if the pus cannot be found, it is most likely that it will find its way to the incision within twelve or twenty-four hours. Hæmorrhage may also occur after ten or twelve hours.

Sometimes, when called too late to such a case, the surgeon cannot open it through the mouth; he must then open the abscess from without, remembering that the abscess is situated much deeper than in an ordinary suppuration of the glands of the neck. The operation must, therefore, be carried out slowly and carefully under general anæsthesia.

When the abscess has healed, the tonsil and tonsillar fossa must be carefully examined and attended to, to prevent recurrence.

Arthur J. Hutchison.

Dabney, S. B. (Louisville, Kentucky).—*Chancre of the Tonsil: its Symptoms and Diagnosis.* "The Medical Times," September, 1901.

A paper read before the Louisville Clinical Society. After citing various authorities as to the previous hypertrophy of the tonsil, and as to the question of the lesion being unilateral, or even bilateral, the author mentions two cases as illustrating the various ways in which this disease can be acquired. In the first case, that of a male aged twenty-five, the infection had been conveyed by smoking the pipe of a messmate who was being treated for syphilis; in the second case, a girl aged seventeen, was found to be suffering from chancre of the tonsil, due it was supposed to some attachment existing between herself and a youth suffering from syphilis. Various other cases were mentioned in the discussion which followed.

StGeorge Reid.

Hopkins, F. E.—*Malignant Disease of the Tonsil.* "Boston Medical and Surgical Journal," October 17, 1901.

A paper read before the American Laryngological Association, May 23, 1901. In it the author first refers to the rarity of the disease, and cites various authorities on the subject. He considers that carcinoma of the tonsil recurs at a later period of life than sarcoma, the lymphatic structure of the tonsils having then undergone certain retrograde changes, the epithelial structure persisting. He deals at length with the various symptoms and the question of diagnosis, and mentions several cases.

StGeorge Reid.

Hopkins, F. E. (Springfields, Mass.).—*General Anæsthesia in Operations upon the Nose and Throat: Nitrous Oxide, Chloroform, and Ether.* "Boston Medical and Surgical Journal," September 12, 1901.

A paper read before the American Laryngological Association. The author, speaking of nitrous oxide, although he recognises how generally it is employed in England, considers that the disadvantages, such as brevity of unconsciousness, struggling, etc., outweigh its advantages with adults or children old enough not to be alarmed by the apparatus. He employs nitrous oxide first, and follows it by ether. He considers that the danger attending the administration of chloroform in these cases precludes its use; either he has had considerable experience with, and believes that in many cases it has advantages over either of the above. He refers to the method of giving ether by the rectum for operations on the throat and nose as requiring care in its administration, but in some cases being very satisfactory.

StGeorge Reid.

THYROID, THYMUS, Etc.

Taillens.—*Death from Hypertrophy of the Thymus Gland.* "Revue Méd. de la Suisse Romande," June 20, 1901.

The author has seen two deaths in children due to hypertrophy of the thymus :

Case 1.—A boy, fourteen days old, born of healthy parents at full time, and in all respects healthy, was fed at half-past nine, put to bed at ten, where he soon fell asleep. The mother left him sleeping perfectly naturally, but on returning after about two and a half hours found him suffocating, cyanosed. After some hours he died asphyxiated. At the post-mortem examination all the organs were found healthy except the thymus gland, which was much enlarged, measuring 4 to 5 centimetres long, $7\frac{1}{2}$ centimetres broad, and $1\frac{1}{2}$ to 2 centimetres thick, and weighing 38 grammes—i.e., four times the normal weight. The trachea was flattened in its antero-posterior axis, at the junction of the cervical and thoracic portions, by the pressure of the enlarged thymus. The large vessels were not affected. The heart was in diastole, and the blood liquid.

Case 2.—A girl, two years and four months old; father had a goitre, mother healthy; six brothers and sisters healthy. In March, 1900, had diphtheria, but made a good recovery; frequent disorders of digestive tract, with diarrhoea, up till age of one year and a half, since then healthy. On February 14, 1901, commencing loss of appetite, irritability, slight fever at night, no cough, no respiratory difficulty. On February 16 she was left in charge of a girl, fifteen years old, who gave her a drink, and placed her in bed, lying on her left side. After about three hours, during which the attendant never left the room, the mother returned and found the child dead, lying in the exact position in which it had been laid.

At the post-mortem all the organs were found healthy—no signs of rickets—except the thymus, which was enormous. The enlargement, however, was such as to cause pressure, not on the trachea, which was quite normal, but on the roots of the large vessels, especially the pulmonary artery. The heart was arrested in systole.

After discussing shortly the physiology and pathology of the thymus, and rather fully the different views of the "mechanism of death" in hypertrophy of the thymus the author sums up as follows :

1. It cannot be doubted that in certain cases hypertrophy of the thymus can be a cause of death.

2. Death may be sudden, due to syncope, or more slow, due to asphyxia.

3. In the former case there can be no question of treatment, because death occurs so rapidly that there is no time to apply remedies. In the latter case—i.e., death from compression of trachea—medical treatment is useless, so also is intubation or tracheotomy. Only one case has been successfully treated by operation. (Case of Siegle, operated by Rehn. Tracheotomy, introduction of long tube down to bifurcation of trachea. This tube caused so much irritation it could not be tolerated, but on its removal the dyspnoea at once returned. Second operation : Extension of tracheotomy wound down to sternum, opening of anterior mediastinum, fixation of thymus by a few stitches to supra-sternal fascia.)

4. The importance of enlargement of the thymus may be great, specially in forensic medicine. The thymus may be the real cause of

death in certain rare cases of so-called death from goitre; it may also be the cause of the difficulty of decannulation after certain tracheotomies.

5. The expression "thymic asthma" is not exact. It is better to speak of the rapid form of death as "cardiac or sudden death due to the thymus," and of the asphyxial form as "thymic tracheostenosis."

Arthur J. Hutchison.

NOSE, Etc.

Du Fougerey, Hamon (Le Mans).—*The Rhino-pharyngeal Origin of Goitre.* "Le Progrès Médical," No. 21, May, 1901.

In an interesting article the author gives the results of five years' research; during this time he treated over 200 cases of goitre in which naso-pharyngeal lesions were also present. Fifty-two of these cases were quite cured by suitable naso-pharyngeal treatment in periods varying from one to eight months. In 133 cases the goitre, being of old standing, fibrous or cystic, was considerably reduced in size. In 24 cases the swelling was only slightly reduced. Some goitres of over twenty years' duration were reduced 2 to 4 inches.

The author states that in all these cases a previous congestive state of the naso-pharynx had existed, which would react on the thyroid through the venous anastomosis, described by Bimar and Lapeyre (*Transactions of the Academy of Science, Paris, 1897*). He believes that a vascular lesion of the oro-pharynx produces goitre; a vascular lesion of the nose produces exophthalmus; and that mixed lesions, vascular and sympathetic, of the oro-pharynx produce exophthalmic goitre and cardiac mischief.

The treatment consisted in the use of a 10 per cent. menthol spray three times daily, and the use of a 50 per cent. solution of chromic acid as a caustic for enlarged turbinates or pharynx.

Anthony McCall.

Dunbar, Roy.—*Case of Nasal Sarcoma.* "Journal Amer. Med. Assoc.," August 10, 1901.

Record of a case of nasal sarcoma in which ligature of the external carotids was tried with the view of starving the nasal growth. Very little effect was, however, produced, as the patient died seven months after the first appearance of symptoms.

W. Milligan.

Holmes, C. R., and Garlich, H. S.—*Accidents attending Adenoid Operations.* "Laryngoscope," May, 1901.

In Dr. Holmes's case the patient, a female, aged eight, was undergoing an operation for removal of naso-pharyngeal adenoids under chloroform anæsthesia. When the curette had been introduced into the naso-pharynx, and just as pressure was being made, the instrument suddenly snapped. With great difficulty the fragment was drawn down into the oro-pharynx, and removed by means of a pair of forceps.

In Dr. Garlich's case the patient was being operated upon without an anæsthetic. The instrument suddenly snapped, and the broken fragment was swallowed. Suitable diet was prescribed, and the broken fragment, $\frac{1}{2}$ inch long and $\frac{1}{16}$ inch broad, was passed per rectum three days afterwards.

W. Milligan.

Lermoyez.—*Nasal Neuralgia from a Galvano-Cautery Cicatrix of the Inferior Turbinal.* "Archives Internationales de Laryngologie," etc., July-August, 1901.

This case occurred in a girl, aged nineteen, who complained of marked nasal obstruction, without rhinorrhœa. Two years before polypi had been removed, and for about two months previous to consultation with Lermoyez the nasal insufficiency had become worse, and was accompanied by pharyngeal irritation and frontal headache. Otherwise her health was good; there was no hysteria or other nerve abnormality.

On examination, there was a typical diffuse hypertrophic rhinitis, with myxomatous degeneration of the inferior turbinals. No pus or bone lesion.

For two months the cold snare was used to clear the nasal fossæ as completely as possible of all degenerated tissue, without, at the same time, resecting any part of the bone.

The third month, the nose not being completely freed, several applications of the galvano-cautery were made, especially to the inferior turbinal.

The patient returned three months later. The nose was perfectly free, but she suffered with a very severe right suborbital neuralgia, which she attributed to the nasal operation. Antipyrin was prescribed, but the pain continued during the next three months, being sufficiently severe to prevent work. On exploring the part supplied by the superior maxillary nerve, a very painful spot was found at the point of emergence of the nasal branch, and there was a hyperæsthetic zone at the level of the galvano-cautery scar on the right inferior turbinal. The part was removed by turbinotomy, and the neuralgia ceased and did not recur. Macro- and micro-scopic examinations of the tissue removed revealed one interesting point: a nerve fibre was found caught in the scar tissue resulting from the application of the galvano-cautery.

Macleod Yearsley.

Mayer, Emil.—*Empyema of the Antrum of Highmore in Young Infants.* "Med. Record," August 10, 1901.

Not more than a dozen cases of empyema of Highmore's antrum in infants are to be found recorded in medical literature.

The author's patient was a female child, aged two and a half years, who was brought to hospital suffering from eversion of the right lower eyelid, a fistulous opening in the right cheek, and a fœtid odour from the right nasal passage. Shortly before applying at the hospital the child had had scarlet-fever, followed by an attack of diphtheria. A probe passed along the fistulous opening in the cheek entered what was apparently a large cavity. Bacteriological examination of the pus showed strepto- and staphylo-cocci, but no Klebs-Löffler's or tubercle bacilli. The fistulous tract was opened up, and the antrum freely curetted and cleansed. A drainage tube was passed through the cavity, and drawn out through the corresponding nasal passage. A rapid and uneventful recovery followed.

In his remarks upon this case the author refers to a paper by George Wallis, entitled "Tuberculosis of the Upper Jaw in Little Children simulating Empyema of the Antrum," in which he throws much doubt upon the possibility of there being such a disease as empyema of the antrum in such young children, and in which he advances the theory

that such cases are really cases of tuberculosis of the marrow tissue in the nasal and palatine process of the upper jaw.

The author has no doubt in his own mind that antral empyema may occur in quite young children, and quotes various facts to substantiate his contention.

W. Milligan.

Wishart, Gibb. — *Reduction of Turbinal Hypertrophies*. "Canadian Practitioner," July, 1901.

An academic article dealing with each phase of the subject, in which the author advises either the use of submucous galvano-puncture, the turbinal trocar, or the Graefe-knife introduced through a linear puncture in every instance that will admit. He does not approve of complete turbinectomy, and advises conservatism in all methods of treating nasal insufficiency.

Price-Brown.

LARYNX, Etc.

Arslan. — *Laryngeal Hæmorrhage*. "Archiv. Ital. de Otologia," etc., July, 1901.

The author describes eleven cases of this affection, important not only for itself, but as regards the diagnosis of pulmonary hæmorrhage.

As in other pathological questions, the authorities are divided into two camps: Massei, Morell Mackenzie, Fraenkel, etc., regard it as autochthonous; while Moure, Rethel, and others believe it to be only a symptom of multiple lesions of the vocal organ or of pathological conditions of the whole body, and do not consider themselves justified in calling it idiopathic when provoked by common laryngeal catarrh, as in the author's cases. Accordingly, Schuitzler calls it *corditis hæmorrhagica*; Favitsky, Joal, etc., *acute hæmorrhagic laryngitis*, and these believe the hæmorrhage to be merely the effect of local inflammation. In the same way they regard laryngeal hæmorrhage due to general diseases: pseudo-leucæmia, hæmophilia, diabetes, etc., wherein the bleeding is favoured by changes in the mass of blood or in the vessels.

Massei considers laryngeal hæmorrhage a distinct affection when the amount of the bleeding from the free surface exceeds the limits attributed to the increased vocal tension, which is itself an effect of the local inflammation; but, except in a few cases, Arslan does not think this view justified by clinical experience. Moreover, the quantity of blood may vary at each examination. The expression that *the blood should flow from the free surface* he regards as correct. According to Arslan, hæmorrhagic laryngitis or pseudo-hæmoptysis is understood whenever a more or less abundant spitting of blood is produced from the larynx itself.

Besides his own 11 cases, Professor Arslan has collected from the literature others to the number of 73, with the following results: In 62 in which the sex was noted, 34 were men and 28 women, in contradiction to Stepanow, who believes the disease to be a female prerogative. Of the author's cases, 10 were men and only 1 a woman. As regards age, of 51 patients there were 5, 18 to 20 years; 29, 21 to 40; 12, 41 to 50; and 5, 51 to 60. The favourite age is, therefore, from 21 to 40 years, the time of life in which traumatic or mechanical causes are most frequent. Season has a certain influence. Of the 11 patients, 5 were attacked in January, 3 between October and November, 1 in March, and 2 in April.

The author examines at great length the various views of the pathogenesis of the affection, the number and variety of them being due to the effort of each writer to raise into a law whatever has favoured the hæmorrhage in his own patients.

In the greater number of cases laryngeal catarrh is held accountable, but, as Massei has justly observed, the exceedingly rare occurrence of laryngeal hæmorrhage compared with catarrh excludes the possibility of an etiological connection. Fraenkel and others think the cough is the necessary element through stasis and consecutive increase of endo-vascular pressure. This is, however, in opposition to the fact that in early infancy, when the forms of persistent cough are of extraordinary frequency, laryngeal hæmorrhage is very rare. However, in certain special conditions of the organ cough may cause the rupture of a vessel. Too much importance is attached to over-use of the voice. Of the 73 patients, 8 were singers, 2 were affected with hæmophilia, and in only 3 could the bleeding be attributed to the emission of a high note. These rare cases, in view of the great frequency of abuse of the voice, justify its exclusion as an important cause, and for the same reason hæmophilia, pseudo-leucæmia, etc., may be excluded.

Professor Arslan gives details of his own cases, as well as a résumé of the important features of the more remarkable cases of others, and from these deduces the following clinical picture of the disease: The greater number of the patients have always previously enjoyed good health, and have no local or hereditary predisposition. A few have had catarrh of the larynx. The attack occurs suddenly after some vocal effort or without apparent cause. The patients sometimes unexpectedly bring up sputum tinged with blood or have a distinct hæmorrhage. The hæmorrhage is often preceded by a sense of a foreign body in the larynx. In almost all cases the bleeding recurs several times, lasting sometimes many months. It may assume a periodic form, especially in women at the menstrual epoch. Examination of the thorax often gives negative results; moreover, the majority of the patients are of robust constitution.

The author gives the differential diagnosis at great length, but it may be briefly summed up in that he relies on the laryngoscope as the means of distinguishing laryngeal hæmorrhage from other bleedings from the respiratory tract. It enables the observer to distinguish between bleeding from the larynx in uncomplicated cases, but also in those in which this affection is superadded to pulmonary disease.

The author's conclusions are: That in many patients there is a special local predisposition to laryngeal hæmorrhage, and that some occasional cause—vocal effort, menstruation, etc.—is enough to provoke it. Almost in all cases—*i.e.*, in fourteen out of seventeen—there is a vascular ectasia in the larynx. In twelve patients the ectasia occupied the vocal cord, and especially near the point of union with the mucosa of the ventricle. The dilatation is usually unilateral and limited to a single vessel, which is tortuous, swollen, or ruptured in one or more places. The remainder of this very interesting paper is devoted to a consideration of the prognosis (usually favourable in uncomplicated cases) and to the treatment, which consists in the means commonly employed for the arrest of hæmorrhage from the respiratory tract.

James Donelan.

Garel, J.—*Several Curious Cases of Foreign Bodies in the Larynx.*
"Annales des Maladies de l'Oreille," etc., August, 1901.

This is a somewhat lengthy paper, but is not without interest. Four cases are cited in all. They are the most curious in the author's collection. When one peruses them, one is astonished to see how the larynx can tolerate the presence of some foreign bodies, even for a period of several weeks, without their provoking worse accidents than aphonia and intermittent attacks of suffocation. The first case is that of a nail in the larynx of a boy eight years old. The nail measured $27\frac{1}{2}$ millimetres long, with a diameter of 2 millimetres at the body and 4 millimetres at the head. It was fixed obliquely in the larynx from below up, and from left to right. It was removed under cocaine with forceps.

The second case was one of a man, aged thirty-seven, who carried part of a spoon in the larynx for three weeks. The patient was an epileptic, and during a fit his wife tried to prevent him from biting his tongue by inserting a spoon between his teeth. He bit the spoon, part of which slipped into the larynx. The portion bitten off was about half the bowl, and rested between the vocal cords, its point against the anterior commissure and the bitten part between the arytenoid eminences. It was easily removed.

In the third case, a child of four years and a half swallowed the hook of a laced boot, which remained in the larynx for sixteen months. Its extraction was less easy than in the case of the former foreign bodies, necessitating tracheotomy.

The last case, that of a pin stuck in the larynx, occurred in a woman, aged fifty-three years. The pin was swallowed with some soup, which she was eating rapidly. It was 35 millimetres long, and bore a black head 4 millimetres in diameter. Its extraction was easy.

Macleod Yearsley.

Hankins, George T. (Sydney).—*Case of Extirpation of the Larynx for Epithelioma.* "The Australasian Medical Gazette," September 20, 1901.

The patient was a man aged fifty-seven, who three months previously had some malignant glands removed from the angle of the jaw on the left side. The growth now involved the right side of the larynx up to the middle line, the vocal cords not being implicated. After tracheotomy had been performed and the larynx plugged with gauze, a transverse subhyoid incision was made from one sterno-mastoid to another, the thyro-hyoid membrane being divided and the epiglottis turned out through the wound; a vertical median incision was then made from the first incision to the tracheotomy wound, the soft parts peeled back, the superior cornua of the thyroid cartilage divided, and the larynx dissected downwards from the œsophagus. The trachea being divided below the cricoid cartilage and the larynx removed, the upper end of the trachea was stitched to the skin, and the pharyngeal wound closed by sewing mucosa to mucosa and skin to skin. The bleeding during the operation was unimportant, and, notwithstanding an attack of pneumonia and a recurrence of the disease in the glands at the angle of the jaw and on the right margin of the wound, which had to be removed, the patient made steady progress, and eight months after the operation he was in excellent health.

StGeorge Reid.

Stewart.—"American Journal of the Medical Sciences," September, 1901.

Direct infection of a nurse from a consumptive patient is reported in the description of a case of acute splenic miliary tuberculosis. The patient was a young woman who had had no evidence of tubercular infection prior to her attendance upon a phthisical patient. The patient was in poor circumstances, and had apartments which were badly heated and damp, and the nurse's nourishment while attending him was of very poor quality. In the middle of her second week of attendance upon the case she became acutely ill, and died sixty-eight days later, the autopsy revealing a universal tubercular infection.

ŒSOPHAGUS.

Le Fort, René.—*A Coin in the Œsophagus.* "L'Echo Méd. du Nord," July 7, 1901.

A child, three years old, had swallowed a coin seven days before being brought to hospital. Its health was excellent; external examination negative, but the X rays demonstrated the presence of a coin just above the sternum. An attempt was made, under chloroform, to extract the coin with a Kirmisson's coin-catcher, but without success; œsophagotomy was therefore performed, and the coin easily removed. After turning back the sterno-mastoid, cutting the omohyoid, and dragging the trachea and the thyroid gland forwards and the vasculo-nervous bundle outwards, the coin could be felt lying in the œsophagus by the finger. A short incision was made in the œsophagus, and the coin steadily and firmly pulled out with a pair of forceps. The mucous membrane of the œsophagus had commenced to ulcerate. The œsophageal wound was therefore left unstitched, and a large drainage-tube placed in contact with it, so as to insure thorough free drainage, the tube being gradually shortened as the wound healed from the bottom. Feeding from the first day by means of nasal catheter. Recovery uneventful.

Arthur J. Hutchison.

Poli, Camillo (Genoa).—*A Tracheoscopic Sign of Foreign Bodies in the Œsophagus.* Monograph from the "Bolletino della R. Acad. Med. Genova," Anno XVI., No. 4.

The author describes a case in which a chicken-bone impacted in the œsophagus caused protrusion of the posterior wall of the trachea at the level of the sixth or seventh ring in the form of a hemispherical tumour. The obstruction was removed with the sound. The eighty years of the patient and other circumstances caused the introduction of the sound to be postponed until the tracheoscopic image demonstrated its necessity.

James Douclan.

E A R.

Alexander, G.—*Mastoid Operations under Schleich's Local Anæsthesia.* "Wiener Klinische Wochenschrift," No. 33, August 15, 1901.

This method of obtaining anæsthesia was used in several cases where a general anæsthetic seemed inadvisable; the ages of the patients varied from seventeen to sixty-seven years, and the disease in the ear

had existed from three weeks to eight months. In nine cases the tympanic cavity was opened, and in one the transverse sinus as well. The openings in the bone varied in size from that of a hazel-nut to that of a walnut; the head of the hammer used in chiselling was covered with muslin to deaden the shock and sound. The operations lasted from three-quarters to one hour. Strong solutions were used: 1 to 2 grains of cocaine hydrochlor. in 1 to 2 ounces of distilled water, little of which is absorbed after the first injection. The anæsthesia obtained was not so absolute as with general narcosis, but it was sufficient, and was neither dangerous nor had it any unpleasant sequelæ.

Anthony McCall.

Gardener, Fletcher.—*Cerebral Abscess*. "Med. Record," August 5, 1901.

The patient, a male, aged twenty-one, had suffered from chronic suppurative middle-ear disease (left side) from infancy. Perforation of the membrane existed in its upper and anterior quadrant, and slight tenderness was complained of over the mastoid. The pain becoming more intense, and the patient becoming somnolent and stupid, with a temperature of 103° to 104° F., operation was decided upon. The mastoid cells were opened, and cholesteatomatous débris scraped out.

Shortly after the operation marked paraphasia, principally affecting nouns, was noticed. The temperature was normal, and the pulse 50 to 60. There was also ptosis of the left eyelid, slight paresis of the right foot, and deviation of the tongue to the right. No tenderness on pressure or percussion was complained of over the head, but severe pain existed over the right eye, in the right eye, and at the root of the nose. It was decided to explore for temporo-sphenoidal abscess. A grooved director was passed into the lobe, and at a depth of $\frac{1}{2}$ inch an extremely foul collection of pus was found. A drainage tube was inserted, shortened on the seventh day, and removed upon the tenth day. Steady progress was made. The main points in the diagnosis of the case were the presence (1) of motor aphasia, (2) alexia, and (3) agraphia. The surface locations of these centres are quite apart, but from the temporal lobe there proceeds to the frontal lobe a band of association fibres, any lesion of which causes paraphasia. A second band proceeds to the occipital lobe, and a lesion of this tract is responsible for the alexia. The agraphia was probably a pressure symptom. The author sums up his remarks by saying: "The surgical moral is that aphasia in the presence of ear disease calls for exploratory trephining; the neurological moral is that more emphasis should be placed on subcortical aphasia in teaching and writing."

W. Milligan.

Gaudier.—*Mastoid Suppuration with Abnormal Course*. "L'Écho Méd. du Nord," June 23, 1901.

CASE I.—A boy, four years old, had an acute otitis media in the early part of the year 1900, which, under ordinary treatment, was soon cured, and left no bad effects. A second attack occurred in November, 1900, and a third in March, 1901. The discharge was slight and not fœtid; no tenderness on manipulating the auricle or on pressure over the mastoid process. Recovery after all these attacks was rapid, and seemed complete. In April a swelling appeared in the temporal fossa, which after a few days displaced the upper part of the auricle outwards and downwards. There was no swelling, pain, or tenderness

over the mastoid; the membrana tympani, slightly retracted, presented a small cicatrix in its antero-inferior quadrant. General health excellent. The abscess in the temporal fossa being opened, a large quantity of greenish, very fluid pus, streaked with blood, was evacuated. No bare bone could be found with the finger, but on careful search with the probe a fistula was found in the upper and anterior part of the mastoid leading to the antrum. On opening into the antrum, the whole mastoid process was found to be hollowed out and filled with granulations, with little tendency to bleed. The cavity was thoroughly curetted, swabbed with zinc chloride 1 : 5, etc. Recovery good. Guinea-pigs were inoculated with some pieces of the granulations, but with negative results up to date of report—*i.e.*, about four weeks.

CASE II.—A man, aged twenty-seven, in good general health, had acute otitis media dextra in February. This was not treated. Thereafter he began to suffer from intolerable neuralgic pains, starting in the ear and radiating to the head and face. Examined in May, the meatus was filled by a red polypus-like mass, formed by the bulging postero-superior wall of the meatus. Incision into this gave vent to a large quantity of greenish pus, mixed with blood and matter, like brain substance. The mastoid was neither swollen nor tender. A probe passed easily upwards and backwards into the mastoid cells. Mastoid operation performed some days later: External surface of mastoid bone eburnated, the whole posterior osseous wall of meatus as far as the tympanum completely absent; the whole mastoid transformed into one large cavity filled with large and small sequestra and granulation tissue. Treatment by free opening, curetting, etc.

Arthur J. Hutchison.

Harmer.—*The Action of Suprarenal Extract on the Mucous Membrane of the Nose and Throat.* "Wiener Klinische Wochenschrift," No. 24, June, 1901.

This paper was read at a meeting of the Vienna Laryngological Society, and after discussion it was generally agreed that the administration of the extract in powder form had no practical advantages over a solution used fresh, and of a suitable strength. The extract increased the anæsthetic action of cocaine, and by rendering the superficial layers of the mucous membrane anæmic it lessened the danger of cocaine-poisoning.

Anthony McCall.

Luc.—*Temporal Periostitis of Otitic Origin without Intramastoid Suppuration.* "La Presse Méd.," May 8, 1901.

Within a year Luc has seen four cases of periostitis arising from slight transitory affection of the middle ear, with no, or only very trifling, discharge, and which did not involve the mastoid antrum or cells. Peri-auricular periostitis without implication of the mastoid cells or antrum has been described by other writers, but in their cases the swelling has not been strictly limited to the supra-auricular region, but has also involved the retro-auricular or mastoid surface. In Luc's cases the swelling was strictly limited to the temporal region and to the superior wall of the meatus; there was no swelling, no pain, tenderness on pressure, or throbbing in any part of the mastoid. The swelling in the temporal region pitted on pressure in all, fluctuation could be elicited in some cases. The pain produced by pressure was not nearly so severe as that produced by pressure on a swelling of the

same nature over the mastoid process. Pain was by no means a prominent symptom; rather, its slight degree or complete absence was striking. Evidence of tympanic affection may be entirely wanting, or may consist in moist sounds produced by inflation. A history of ear-ache, transitory deafness, transitory discharge, etc., can generally be obtained. Fever varies greatly; it may be insignificant or intense. Temperature remained above 40° C. for five days in one of Luc's cases. The usual termination is in abscess formation, but this is not constant. Treatment when abscess has formed is by incision down to the bone the whole length of the superior wall of the meatus, and drainage through this incision for a few days. By pressure over the temporal abscess the whole of the pus can be emptied out through the meatal incision. This may have to be repeated once or twice, but by the end of the second day the drainage-tube may be removed and the wound allowed to heal.

Arthur J. Hutchison.

Moure and Lafarelle.—*Fatal Case of Suppuration of an Aberrant Mastoid Cell.* "Rev. Hebdom. de Laryng.," etc., January 26, 1901.

The patient was a man forty-six years old, who came to M. Moure's clinique with symptoms of left median otitis and mastoiditis. Paracentesis of the membrane allowed pus to escape and gave temporary relief to the pain; but a few days later the mastoid operation had to be performed. Pus was found under the corticalis and in a diverticulum extending towards, without reaching, the lateral sinus. The antrum was full of granulation tissue. The whole of the diseased tissue was carefully curetted away till healthy bone was reached all round. The results were perfectly satisfactory: the wound healed by first intention, the cavity gradually filled up, and there was not the slightest pain. The patient was to be dismissed from hospital almost cured, when suddenly—almost a month after the operation—violent and continued vomiting, headache, constipation, high fever and rigors, set in, followed by delirium carphology, general contractures, unequal pupils, and double retinitis with oedema of the papillæ and venous congestion; the pulse was slow; the wound was perfectly healthy. General meningitis having been diagnosed, no operation was done, and after nine days the patient died.

The post-mortem examination confirmed the diagnosis of general meningitis. The cavity produced by the operation was perfectly healthy. A cavity filled with pus was found in the posterior part of the mastoid. It was situated just above a horizontal plane passing through the upper border of the external meatus, and 1 centimetre behind a vertical plane passing through the tip of the mastoid. It was therefore completely above and behind the operation cavity, from which it was completely separated by a wall of eburnated, healthy bone $\frac{1}{2}$ centimetre in thickness. On the other hand, it was limited internally, not by bone, but by the lateral sinus. The lateral sinus itself, though bathed in pus, was quite healthy. In Moure's opinion, the infection was carried from the antrum to this aberrant cell by the blood or lymph stream, and thence again by the lymph stream to the meninges.

Arthur J. Hutchison.

Treitel, Leopold (Berlin).—*Carcinoma of the Ear*. "Arch. of Otol.," vol. xxx., No. 3.

The author has seen three of these rare cases within the last two years. The first occurred in a man, aged fifty-five, who had double otorrhœa since childhood; the tympanic cavity was seen to be filled with granulation tissue, which rapidly regrew after removal, the malignancy of the disease being then established with the aid of the microscope. Paralysis of the facial and recurrent laryngeal nerves of the same side developed; subsequently deep-seated abscesses formed round the neck, and the patient died, within about a year, of general exhaustion. Post-mortem examination showed the extent of the disease to be much greater than was expected. In the second case, that of a female aged seventy-seven, there had been otorrhœa for seventeen years; the diagnosis of carcinoma was made in 1891, and she died in 1898 of meningitis. There was no direct connection between the disease and the meninges, the cause of the inflammation of which could not be determined. In the third case, a female, aged sixty-three, had hæmorrhage from one ear so profuse that an otoscopic examination was impossible. The region in front of the tragus was thickened; there subsequently developed complete facial paralysis and mastoid pain. The meatus became filled with granulation tissue, which was adherent to the surrounding structures, and found to be a vascular typical epithelial tumour. In the hope of relieving pain, a mastoid operation was performed, but without the desired result being obtained. On post-mortem examination, the entire squamous bone and all of the mastoid, except its posterior border, were found involved; the sigmoid sinus was empty and collapsed, and the internal carotid partially occluded by a coagulum; the parotid gland was involved.

With regard to the origin of carcinoma of the ear, it is pointed out that, as a result of chronic suppurative inflammation, squamous epithelium grows from the skin into the tympanic cavity, thus allowing of the origin of epithelial cancer in the middle ear. Sometimes papillomatous or other non malignant growths undergo a cancerous change.

The writer agrees with Kuhn that we should not consider cases diagnosed by the microscope to be epithelioma as malignant, unless their clinical course confirms the microscopical evidences, some being really syphilitic, and recovering under mercurial treatment even when the glands were enlarged. In cases in which a mastoid operation is followed by very retarded repair, the development of cancer must be looked for. Some cases believed to be carcinoma have undergone apparent cure, as the result of local applications of alum and powdered savin, as in a case of Jacobson's. It is to be remembered that the rapidity of growth of cancer varies very much in different cases, and in old persons it may be particularly slow. It is important that the disease should be recognised early, for as long as the growth has not extended to the auricle or cartilage of the auditory meatus, the radical operation offers some hope for a permanent cure.

(In two cases which have come under the reviewer's observation, the chief objective symptom was an extensive area of exposed bone in the auditory meatus surrounded by very ordinary-looking granulation tissue, which on microscopical examination was found to be epitheliomatous. The amount of pain was in one case quite out of proportion to the apparent acuteness of the disease.—D. G.) *Dundas Grant.*

Watson, William J.—*Report of a Series of Cases of Mastoiditis, with Operations.* "Journal of Eye, Ear, and Throat Diseases," May and June, 1901.

This paper consists of short reports of fifteen cases operated on at the Presbyterian Eye, Ear, and Throat Hospital, Baltimore, during the years 1898 and 1900. Those operated on in 1899 have already been recorded in the *Maryland Medical Journal*, October, 1900. The cases are shortly reported in the order in which they occurred, not classified in any way; the conditions as to hearing-power, etc., before and after operation are given in some cases but not in others. In short, the majority of the reports are too incomplete to be of much value.

One case, male, aged seventeen, with discharge from left ear off and on for fifteen years, had much pain, but no tenderness over the mastoid, and a painful fluctuating swelling in the neck. On opening the mastoid, the tip was found to be perforated, and pus extended thence down the neck. The necrosed bone was cleared away, and the neck opened almost to the clavicle. Recovery uneventful. Another case with thrombosis of the lateral sinus ended fatally. The thrombus was cleared out till the blood-stream was restored. The clot was found to contain a focus of pus. The symptoms on admission were severe pain in the head, and some tenderness over the left mastoid; temperature 102°. No optic neuritis.

Arthur J. Hutchison.

THYROID, Etc.

Packard and Hand.—"American Journal of the Medical Sciences," September, 1901.

An interesting case of sporadic cretinism is reported occurring in a child of six, who manifested continuous improvement under thyroid therapy for the two years during which he remained under the author's observation. On several occasions it was necessary to diminish the dose of thyroid owing to the indications of the therapeutic limit (weakness and rapid pulse). The marked improvement brought about in the case is shown by numerous illustrations accompanying the article.

REVIEW.

Atlas der Nasenkrankheiten. Enthaltend 356 Figuren in 475 Einzelbildern, auf 38 Tafeln. Von Hofrath Dr. ROBERT KRIEG. Lieferungen fünfte, sechste und siebente. Mit Deutschem und Englischem Texte by ALPHONSE ROMAN, Med. Kiel., M.R.C.S. Eng., L.R.C.P. Lond. Stuttgart: Ferd. Enke; Glasgow: F. Bandmeister. Price 6s. per Lieferung. 1901.

The three last parts of Dr. Krieg's already well-known atlas are chiefly devoted to those nasal and naso-pharyngeal conditions due to the ravages of syphilis and tuberculosis, and, as such, need but little comment, though the rare conditions depicted are of most value in a

museum. Yet they are, generally speaking, well up to the height of excellence possessed by the earlier numbers. In these parts Dr. Krieg presents to the reader seventeen plates, the first being devoted to perforating ulcer of the septum, a condition which he considers to be nearly allied to perforating ulcer of the foot. In Fig. 23 he shows various conditions giving rise to this trouble, drawing attention to the fact, frequently overlooked, that *rhinitis sicca* is usually found in these patients, and that habitual epistaxis may be considered, as it were, a symptom of this disease, and that the "bleeding polypi of the septum" (Plate 24) are most probably a further development of the foregoing condition. At the end of his description of the plate he makes the following classification:

Metaplasia of the epithelium.
Proliferation of the epithelium (pachyderma).
Epistaxis (xanthosis).
Erosion.

Atrophy; cicatrization.	Ulceration; proliferation of the septum.	Proliferation of tissue; bleeding polypus.
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Plates 25 to 28 are devoted to tuberculosis of the nose, in which Dr. Krieg includes lupoid conditions, though, for our part, we are not inclined to consider lupus as an exhibition of tuberculosis. The most valuable of these plates is No. 28, which shows some admirable examples of that rare condition, tuberculomata of the septum. The remaining plates, with the exception of Plate 38, are devoted to syphilis and malignant disease. Dr. Krieg's drawings of the various syphilitic affections of the nose are most admirable and complete. The same may be said of his plates illustrating malignant disease. Plate 38 is devoted to various illustrations connected with accessory sinus disease; those showing the situation in which pus is found in suppuration of the various sinuses will be found extremely useful to teachers of rhinology. As we stated in our review of the earlier parts of this valuable atlas, we cannot overestimate the important part it will take in the diffusion of rhinological knowledge; and Dr. Krieg has performed a difficult task in a most satisfactory and complete way, and we congratulate him on his performance, and feel assured that his book will command a wide popularity.

R. Lake.

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